

Table of contents

1	CONTENT OF THE PROGRAMME	3
1.1	INTRODUCTION	3
1.2	MISSION OF THE MASTERS' PROGRAMME.....	3
1.3	RELATION BETWEEN MASTERS PROGRAMME AND THE COPERNICUS INSTITUTE	3
1.4	DEGREE QUALIFICATION.....	4
1.5	CURRICULUM.....	4
1.6	ELECTIVE COURSES.....	6
1.7	ENTRANCE REQUIREMENTS AND OTHER RESTRICTIONS OF ENERGY SCIENCE COURSES.....	7
1.8	CONVERSION OF FORMER COURSES	11
1.9	EXTRA-CURRICULAR PROGRAMMES.....	12
2	DIDACTICS, STUDY PLANNING AND SUPERVISION	13
2.1	EDUCATIONAL FORMAT	13
2.2	STUDY MANAGEMENT AND SUPERVISION.....	14
2.3	COURSE ENROLMENT AND AUTOMATIC GRADUATION	15
2.4	MYTIMETABLE AND MYUU APP	17
2.5	STUDY ABROAD	17
2.6	STUDENT AFFAIRS OFFICE GEOSCIENCES AND STUDENT SERVICES	19
2.7	RESPONSIBILITY FOR THE PROGRAMME.....	20
2.8	EVALUATION AND QUALITY ASSURANCE	21
2.9	CAREER PERSPECTIVES AND CAREER SERVICES	22
2.10	NRG THE STUDY ASSOCIATION OF ENERGY SCIENCE	23
3	APPENDICES	24
3.1	RULES FOR CHOOSING ELECTIVE COURSES	25
3.2	EDUCATION AND EXAMINATION REGULATIONS GRADUATE SCHOOL OF GEOSCIENCES 2024-2025.....	26
3.3	PROGRAMME SPECIFIC PART OF THE EER 2024-2025, GRADUATE SCHOOL OF GEOSCIENCES: MASTER'S DEGREE PROGRAMME IN ENERGY SCIENCE	41
3.4	REGULATIONS OF THE BOARD OF EXAMINERS 2024-2025.....	52
3.5	TEACHING PERIODS DEPARTMENT OF SUSTAINABLE DEVELOPMENT 2024-2025	64
3.6	UU TIME TABLE 2024-2025.....	65

Preface

Welcome to the Master's programme Energy Science!

The energy transition and its challenges are at the heart of the Energy Science Master's degree programme at Utrecht University. Our interdisciplinary programme aims to educate students to become professionals who, as a result of their strong analytical skills, research-based training, specialized knowledge and professional attitude, can contribute to the transition towards a sustainable energy system as change agents in academia, businesses, governments, and societal organizations. The strong connection to the excellent research within the Copernicus Institute, combined with the large variety of activating teaching modes, engaged interdisciplinary and international staff, and the close link to real world challenges, contributes to meeting the aim of our Masters programme.

Although the programme has always been positively evaluated by students, alumni, employers, and external committees, we see the need for constant monitoring and improvement of our education programme. Therefore, for the past two years we have worked on an extensive renewal of the Energy Science curriculum to keep its content fit-for-purpose in the light of the ongoing energy transition. We are very pleased we are implementing this renewed programme this academic year and we hope you are as enthusiastic about it as we are.

We trust this course catalogue will help you to easily find the relevant information you need as a student in the Master's programme Energy Science. First you will find a general description of the programme, the structure, the components and some organisational matters. This is followed by information about procedures and the UU-time table. The Education and Examination Regulations 2024-2025 (OER) can be found in Appendix 3.2 and 3.3 and the Regulations of the Board of Examiners in Appendix 3.4.

At any time during your studies you will need two course catalogues: one of the year you started your Master's programme in Energy Science (this shows the exam programme that you need to follow) and one of the most recent academic year, which shows the current rules and regulations. You can find more information on the website and in the Blackboard community for Energy Science students. If you have some (personal) questions, you can contact the programme leader or the study advisor of the programme.

On behalf of the staff we wish you an inspiring, pleasant and successful new academic year!

Dr. Matteo Gazzani, Programme Leader Master Energy Science

and

Prof. dr. Karin Rebel, Director of Education Department of Sustainable Development

1 Content of the programme

1.1 Introduction

Our society is confronted with enormous and pressing challenges linked to the increasing impacts of advancing climate change. Phasing out the use of fossil fuels and achieving a sustainable, net-zero emissions energy system will be the biggest challenge to meet the stringent climate targets agreed upon in Paris in 2018. Also changing geopolitical constellations have recently caused new challenges with regard to the sustainable, reliable and affordable provision of energy. There is a clear need for energy science to support and speed up the development towards a sustainable, net-zero emission energy system in a changing world.

The energy transition and its challenges are at the heart of the Energy Science Master's degree programme. The curriculum covers multiple aspects of the energy transition, including many of its scientific and societal challenges. The focus is on energy systems at large, while also considering individual energy conversion technologies (conventional, novel and future). The programme will provide you with a deep understanding on how energy systems work, and how they can be analysed and modelled. Although, the programme concentrates on the natural science and technical aspects of the energy transition, the socio-economic context and aspects are also addressed since key hampering factors of the energy transition are often rooted in policy and societal context.

1.2 Mission of the Masters' programme

The aim of the Energy Science Master's programme is to educate students to become professionals who, as a result of their strong analytical skills, research-based training, specialized knowledge and professional attitude, are well equipped to contribute to the transition towards a sustainable energy system as change agents in academia, businesses, governments, and societal organizations.

1.3 Relation between Masters programme and the Copernicus Institute

The Energy Science Master's degree programme is embedded in the Graduate School of Geosciences and is organised by the Department of Sustainable Development. The Department of Sustainable Development is the name of the educational institute within the Faculty of Geosciences. As a research institute this department is known as the Copernicus Institute of Sustainable Development. The Copernicus Institute has a strong commitment to the development of multi- and interdisciplinary knowledge that facilitates transformations to a sustainable and equitable society. The research conducted at the Copernicus Institute covers a wide range of topics related to sustainable development and innovation.

Most of the energy-related research in the Copernicus Institute is carried out in the group Energy and Resources, led by [prof. dr. Martin Junginger](#). The research of this group covers a variety of topics, including e.g. energy system integration, energy efficiency, energy markets, photovoltaic solar energy, bioenergy & biomaterials, and carbon capture and storage as well as circular economy and sustainable resource use. The large majority of the lecturers of the Energy Science programme are part of this group.

1.4 Degree qualification

The Energy Science MSc programme has the following degree qualifications:

The graduate:

1. has advanced demonstrable knowledge and understanding of energy technologies and energy systems, including their dynamics and challenges in the context of the energy transition and sustainable development.
2. is able to conduct research on energy technologies and energy system dynamics and challenges in an original and independent way
3. has the ability to apply knowledge, research methods, and problem-solving abilities in broader and novel contexts related to energy systems and the energy transition.
4. has insight into the uncertainties and complex interactions between the energy systems and society and is able to reflect critically upon their role to influence the energy transition.
5. is able to apply knowledge and understanding in such a way that they demonstrate an academic and professional approach to their work;
6. is able to communicate conclusions, as well as the knowledge, reasons and considerations underlying these conclusions, to an audience of specialists and non-specialists alike.
7. is able to study and work independently and explore new areas of interest in energy science or related fields

1.5 Curriculum

Energy Science is a 2 year full-time Master's programme (120 EC). It consists of 105 EC obligatory courses, including a 45 EC thesis, and 15 EC elective courses. See Figure 1 for an overview of the curriculum.

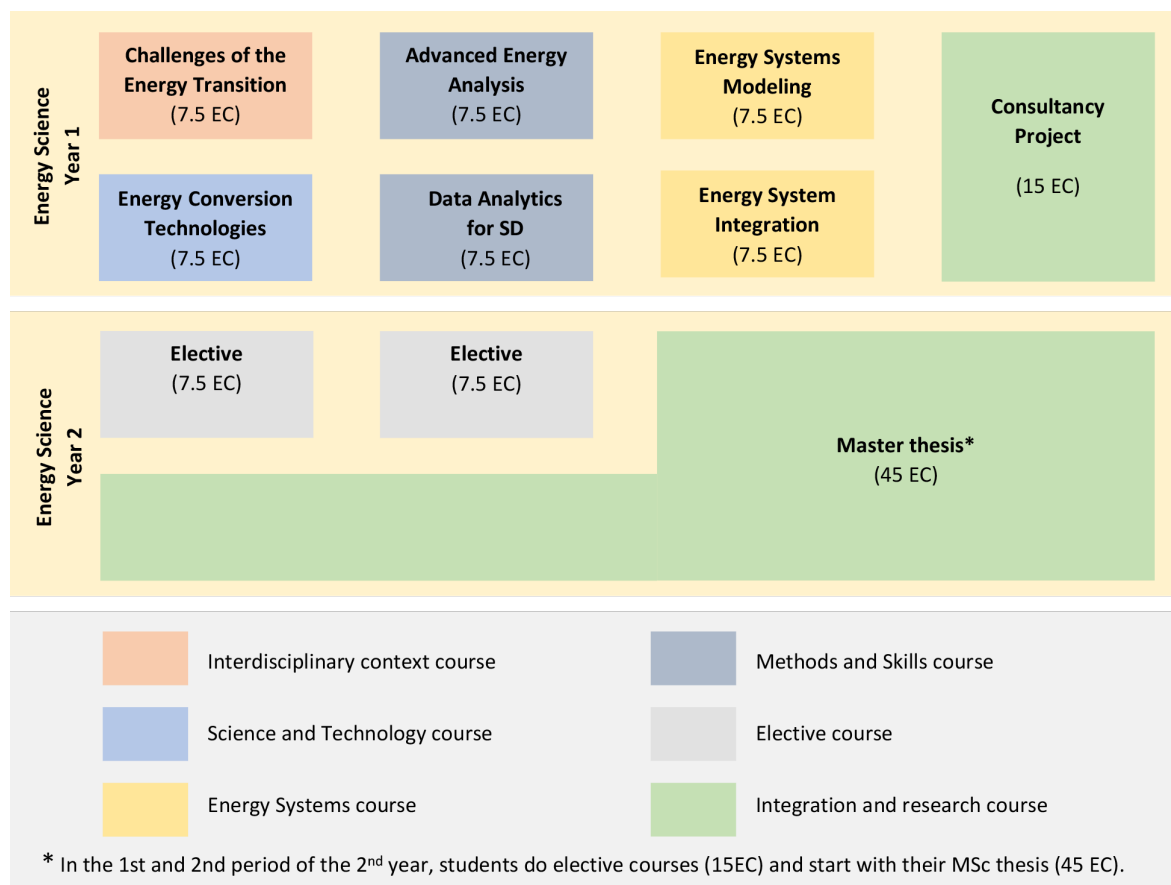


Figure 1: Overview of the renewed Energy Science Master's degree programme.

The Energy Science curriculum consists of five types of mandatory courses: Interdisciplinary context course, Science and Technology course, Energy Systems courses, Methods and Skills courses and Research and Integration courses.

Interdisciplinary context course

At the start of the Energy Science Master's programme, the course challenges of energy transitions is thought. This course focussed on all non-technical challenges of the Energy transition, as key hampering factors of the energy transition are often rooted in the policy and societal context. This course addresses societal, political, environmental, economic, financial and legal issues of the energy transition. While focus is on 'the energy transition', the plural in the title of the course reflects the fact that there have been energy transitions before, and that – within the present energy transition – there are mini transitions worthy of our attention.

Science and Technology course

In parallel to the interdisciplinary context course, the Energy Science Master programme starts with an in depth course on conventional, current and future energy technologies. The course focuses on the physical relation between design of energy conversion systems and their performance. In order to investigate this, the student is required to open up the black box of energy conversion system and needs to study the scientific principles underlying the considered systems, and to understand how performance indicators can be rigorously computed. Applying basic principles will allow for (i) the identification of maximum theoretical conversion efficiencies, (ii) the comparison with actual efficiencies, and (iii) understanding where improvements are (still) possible.

Methods and Skills courses

The second period of the first year is all about learning new methods and skills required to analyse and model energy systems. The course Advanced Energy Analysis teaches the most important research methods to analyse and evaluate energy technologies and systems and how to apply these independently. The students will learn about the strengths and weaknesses of these methods and understand the level of uncertainties in using them. It addresses technological learning, process analyses including LCA, economic analysis, the use of energy statistics, Input/output analysis and multi criteria analysis. The course data analytics for Sustainability aims to provide students with state-of-the-art programming methods and tools to analyse different types of data frequently encountered when working on energy related issues. Using open-source programming tools (R & Python), the students will learn how to treat, visualise and analyse data from a variety of sources. Different modules with specific foci (Programming, GeoSpatial data, and Energy System Modelling) are offered in this course. Each of these modules focuses on its own, domain-specific advanced data analysis techniques. These methods and skill courses are important prerequisites for the rest of the curriculum.

Energy Systems courses

In the third period of the first year of the Energy Science Masters the emphasis is on energy systems. the two courses build upon the courses of the first and second period of the curriculum and are also supportive for one another. In the Energy Systems Integration course provides comprehensive understanding of the integration of electricity, gas, and heat grids, along with storage technologies and demand-side management strategies. Students will gain insights into the multi-energy systems approach, sector coupling, and the role of emerging technologies such as hydrogen. The Energy System Modelling course focusses on state of the art approaches to model the planning and operation

of [renewable] energy systems across multiple scales. The course enables students to apply these approaches to solve real-world energy-transition challenges and support decision-making for policy, business and societal stakeholders.

Research and integration courses

The research and integration component of the Energy Science master programme contains of the 15 EC Consultancy Project at the end of the first year, and the 45 EC Master thesis in the second year of the Master. In the Consultancy Project, students will work in groups of approximately 5-6 persons to solve a concrete energy-related problem for real clients. Students are expected to use and integrate the knowledge and skills obtained in the first part of the Energy Science master to address the research question of the client. Besides the project for the client, the course also includes training on several skills (e.g Team work, proposal writing). This course offers students the opportunity to obtain the necessary skills to carry out a research project independently in preparation for the Master Thesis and their professional career.

The Master thesis is an individual research project of 45 EC in which the student will learn to conduct research independently, whereby new methods are developed or existing methods are applied to a new problem. The research should be relevant from both a scientific point of view (it should expand the body of scientific knowledge) and a societal point of view (it should produce knowledge that can contribute to the solution of energy-related societal problems). Information on procedures, entrance requirements, deliverables etc. can be found in the course description in OSIRIS and in the course manual Master's thesis Energy Science (see the Energy Science community on Blackboard). For further questions you can contact the coordinator of the Master's thesis: [dr. Wen Liu](#).

1.6 Elective courses

The Energy Science Master's degree programme includes 15 EC of elective courses. Electives are subject to some restrictions, e.g.: the elective course should be at Master level and should be related to the subject of Energy or relevant for the Master's thesis. Some elective courses must be approved in advance by the Board of Examiners. The full rules and procedure for choosing electives are described in Appendix 3.1 of this course catalogue.

In the programme, electives have been scheduled in period 1 and 2 of the second year of the Master's programme. These are also the periods in which all electives of the department of Sustainable Development are offered. However, student are free to deviate from this planning, e.g. to take an interesting elective course taught in another period by a different department, faculty, or university. If this causes delay in study planning, this is the student's own responsibility. Students are therefore strongly advised to take their electives in the reserved periods and timeslots, or use a part of these timeslots for the first part of the Master's thesis.

Elective courses can also be followed at other universities. Please note that students with non-EEA nationalities may have to pay a steep fee in order to take elective courses at another (Dutch) university. This fee cannot be paid for or reimbursed by Utrecht University.

The [Babel Talen Institute](#) offers a short course in English for Academic Purposes. This course aims to practice the writing and presenting skills students need in their Master's programme. It does not offer any credits but students can take the course outside their Energy Science programme, at their own expense.

Potentially interesting electives:

- GEO4-2323: Environmental Ethics (1A)
- GEO4-2010: Imagining the Future for Transformation (1C)
- GEO4-2521: Bio-based Economy (1D)
- BETA-MPHSE: Photovoltaic Solar Energy (2A)
- GEO4-2338: Squaring the Circular Economy (2B)
- GEO4-2005: Sustainable Food Systems (2C)
- GEO4-2340: Integrated Assessment of Climate Change (2D)
- GEO4-2303: Environmental Systems Analysis (3A+B)
- GEO4-2013: 'Changemaking Journeys: Transformational leadership for societal impact' (period 2, 3 and 4, slot C). **NOTE: 2,5 EC!**

More recommended electives can be found in the academic progress overview in OSIRIS. Recommended electives do not need to be approved by the programme leader or the Board of Examiners.

1.7 Entrance requirements and other restrictions of Energy Science courses

Some courses have entrance requirements and/or recommended prerequisites or may have other entrance restrictions. The tables below show which courses in the Energy Science programme have which requirements.

In case of a discrepancy between the entrance requirements and/or recommended pre-requisites and/or other restrictions mentioned in this course catalogue and the ones mentioned in the electronic UU course offerings database OSIRIS, the entrance requirements and/or recommended pre-requisites and/or other restrictions mentioned in the tables below are leading.

Table 1: Entry requirements / Recommended Prerequisites

Course	Entry requirements/recommended prerequisites
Sustainable Food Systems (GEO4-2005)	Letter of acceptance of a Master's programme
Innovation and International Development (GEO4-2009)	Letter of acceptance MSc Sustainable Development or MSc Innovation Sciences or MSc Sustainable Business & Innovation or MSc Energy Science or MSc Water Science and Management.
Imagining the Future for Transformation (GEO4-2010)	Letter of acceptance of a Master's programme
Data Analytics for Sustainability (GEO4-2011)	Letter of acceptance MSc Sustainable Development or MSc Innovation Sciences or MSc Sustainable Business & Innovation or MSc Energy Science or MSc Water Science and Management. Recommended pre-requisites: knowledge of R and Python
Changemaking Journeys: Transformational leadership for societal impact' (GEO4-2013)	Letter of acceptance MSc Sustainable Development or MSc Innovation Sciences or MSc Sustainable Business & Innovation or MSc Energy Science or MSc Water Science and Management.
Advanced Energy analysis (GEO4-2508)	Letter of acceptance of a Master's programme Recommended prerequisites: <ul style="list-style-type: none"> - Strong foundation of Energy Analysis and calculus - Knowledge of Energy Conversion Technologies

<p>Master's thesis 30 EC (GEO4-2510)</p>	<ul style="list-style-type: none"> - Only for cohort 2023 and earlier - Letter of acceptance MSc Energy Science - At least 45 EC passed within the programme Energy Science including one of two course packages: <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies I (GEO4-2502) • Energy Conversion Technologies II (GEO4-2503) • Energy Systems Modelling (GEO4-2515) <p>or</p> <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies (GEO4-2526) <p>And 1 out of 2 courses:</p> <ul style="list-style-type: none"> • Energy Systems Integration (GEO4-2527) • Energy Systems Modelling (GEO4-2515) <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Consultancy Project (GEO4-2519)
<p>Energy Systems Modelling (GEO4-2515)</p>	<p>Letter of acceptance of a Master's programme</p> <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Energy Analysis (GEO3-2223) - Advanced Energy Analysis (GEO4-2508)
<p>Tailor made course ES (GEO4-2517)</p>	<ul style="list-style-type: none"> - Letter of acceptance MSc Energy Science - At least 45 EC passed within the programme - Students have to have a supervisor before writing the TMC proposal!
<p>Natural Science Research Project (GEO4-2518)</p>	<ul style="list-style-type: none"> - Obligatory for and only open to students in the Natural Science track, cohort 2023 and earlier - Letter of acceptance MSc Energy Science <p>Passed examinations of one of two course packages:</p> <ul style="list-style-type: none"> - Advanced Energy Analysis (GEO4-2508) - Energy Conversion Technologies I (GEO4-2502) - Energy Conversion Technologies II (GEO4-2503) <p>or</p> <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies (GEO4-2526) <p>And 1 out of 2 courses:</p> <ul style="list-style-type: none"> • Energy Systems Integration (GEO4-2527) • Energy Systems Modelling (GEO4-2515) <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - At least one natural science elective - Energy Systems Modelling (GEO4-2515)
<p>Consultancy project (GEO4-2519)</p>	<ul style="list-style-type: none"> - Letter of acceptance MSc Energy Science - Open to students in track Systems Analysis, cohort 2023 and earlier - Open to students in Energy Science, cohort 2024 and later <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Advanced Energy Analysis (GEO4-2508) - Energy Systems Modelling (GEO4-2515)
<p>Internship Energy Science 22.5 EC (GEO4-2520)</p>	<ul style="list-style-type: none"> - Only open to students in track Systems Analysis, cohort 2023 and earlier - Letter of acceptance MSc Energy Science - Passed examinations of one of two course packages: <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies I (GEO4-2502) • Energy Conversion Technologies II (GEO4-2503) • Energy Systems Modelling (GEO4-2515) <p>or</p>

	<ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies (GEO4-2526) <p>And 1 out of 2 courses:</p> <ul style="list-style-type: none"> • Energy Systems Integration (GEO4-2527) • Energy Systems Modelling (GEO4-2515) <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Consultancy Project (GEO4-2519)
Bio-based Economy (GEO4-2521)	<ul style="list-style-type: none"> - Letter of acceptance MSc Energy Science or MSc Innovation Sciences or MSc Sustainable Development or MSc Sustainable Business & Innovation or MSc Water Science and Management or MSc Chemistry <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Advanced Energy Analysis (GEO4-2508) - Life Cycle Analysis (GEO3-2124; BSc course) - Sustainability Assessment and Management Tools (GEO4-2602) - Science and Technology for Sustainable Development (SK-BCHDO; BSc course)
Energy in the Built Environment (GEO4-2522)	<ul style="list-style-type: none"> - Letter of acceptance MSc Innovation Sciences or MSc Sustainable Development or MSc Sustainable Business & Innovation <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Basic principles of energy flows in the built environment, i.e. electricity, heat and gas networks. - Basic knowledge on power system planning & operation and electricity markets.
Master's thesis 45 EC (GEO4-2523)	<ul style="list-style-type: none"> - Only for cohort 2023 and earlier - Letter of acceptance MSc Energy Science - At least 45 EC passed within the programme Energy Science including one of two course packages: <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies I (GEO4-2502) • Energy Conversion Technologies II (GEO4-2503) • Energy Systems Modelling (GEO4-2515) <p>or</p> <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies (GEO4-2526) <p>And 1 out of 2 courses:</p> <ul style="list-style-type: none"> • Energy Systems Integration (GEO4-2527) • Energy Systems Modelling (GEO4-2515) <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Consultancy Project (GEO4-2519)
Master's thesis 45 EC (GEO4-2528)	<ul style="list-style-type: none"> - Only for cohort 2024 and later - Letter of acceptance MSc Energy Science - At least 45 EC passed within the programme Energy Science including: <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies (GEO4-2526) <p>And 1 out of 2 courses:</p> <ul style="list-style-type: none"> • Energy Systems Integration (GEO4-2527) • Energy Systems Modelling (GEO4-2515) <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> • Consultancy Project (GEO4-2519)
Internship Energy Science 15 EC (GEO4-2524)	<ul style="list-style-type: none"> - Only open to students in track Systems Analysis, cohort 2023 and earlier - Letter of acceptance MSc Energy Science - Passed examinations of one of two course packages:

	<ul style="list-style-type: none"> Advanced Energy Analysis (GEO4-2508) Energy Conversion Technologies I (GEO4-2502) Energy Conversion Technologies II (GEO4-2503) Energy Systems Modelling (GEO4-2515) <p>or</p> <ul style="list-style-type: none"> Advanced Energy Analysis (GEO4-2508) Energy Conversion Technologies (GEO4-2526) <p>And 1 out of 2 courses:</p> <ul style="list-style-type: none"> Energy Systems Integration (GEO4-2527) Energy Systems Modelling (GEO4-2515) <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> Consultancy Project (GEO4-2519)
Challenges of Energy Transitions (GEO4-2525)	<ul style="list-style-type: none"> Letter of acceptance MSc Energy Science
Energy Conversion Technologies (GEO4-2526)	<p>Letter of acceptance of a Master's programme</p> <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> Strong foundation of thermodynamics, heat transfer and calculus
Energy System Integration (GEO4-2527)	<ul style="list-style-type: none"> Letter of acceptance MSc Energy Science or MSc Innovation Sciences or MSc Sustainable Development or MSc Sustainable Business & Innovation or MSc Water Science and Management <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> Energy Conversion Technologies (GEO4-2526) Advanced Energy Analysis (GEO4-2508)
Techniques of Futuring (GEO4-5501)	<p>Letter of acceptance of a Master's programme</p>

Table 2: Other restrictions of courses

Period	Course	Maximum	Other restrictions
2	GEO4-2005: Sustainable Food Systems	80	Open access
1	GEO4-2009: Innovation and International Development	-	Only open for SUSD, IS, ES, WSM and SBI
1	GEO4-2010: Imagining the Future for Transformation	55	Open access
2	GEO4-2011: Data Analytics for Sustainability	-	Only open for SUSD, IS, ES, WSM and SBI
234	GEO4-2013: Changemaking Journeys: Transformational leadership for societal impact	-	Only open for SUSD, IS, ES, WSM and SBI
2	GEO4-2508: AEA	-	Open access
1234	GEO4-2510: Master's thesis (30 EC)	-	Only open for Energy Science, cohort 2023 and earlier.
3	GEO4-2515: Energy Systems Modelling	-	Open access
1234	GEO4-2517: Tailor made course ES	-	Only open for Energy Science
4	GEO4-2518: NS Research Project	-	Only open for Energy Science NS, cohort 2023 and earlier
4	GEO4-2519: CP-ES	-	Open for Energy Science SA, cohort 2023 and earlier Open for Energy Science, cohort 2024 and later
1234	GEO4-2520: Internship Energy Science (22.5 EC)	-	Only open for Energy Science SA, cohort 2023 and earlier
1	GEO4-2521: Bio-based Economy	-	Only open for ES, IS, SBI, WSM, SUSD and Chemistry

1	GEO4-2522: Energy in the Built Environment	-	Only open for IS, SBI and SUSD
1234	GEO4-2523: Master's thesis (45 EC)	-	Only open for Energy Science, cohort 2023 and earlier
1234	GEO4-2524: Internship Energy Science (15 EC)	-	Only open for Energy Science SA, cohort 2023 and earlier
1	GEO4-2525: Challenges of Energy Transitions	-	Only open for Energy Science
1	GEO4-2526: Energy Conversion Technologies	-	Open access
3	GEO4-2527: Energy Systems Integration	-	Only open for ES, IS, SBI, WSM and SUSD
1234	GEO4-2528: Master's thesis	-	Only open for Energy Science, cohort 2024 and later
2	GEO4-5501: Techniques of Futuring	30	Open access

Table 3: Exclusions Master's courses

Students that passed or have to take the course:	... are not allowed to take the course:
GEO4-2252	GEO4-2007
GEO4-2605	GEO4-2007
GEO4-2604	GEO4-2611 / GEO4-2610
GEO4-2603	GEO4-2610
GEO4-2302	GEO4-2008
GEO4-3518	GEO4-2345
GEO4-3521	GEO4-2345
GEO4-2321	GEO4-2343
GEO4-2322	GEO4-2343
GEO4-2502 <i>and</i> GEO4-2503	GEO4-2526
GEO4-2514	GEO4-2525
GEO4-2520	GEO4-2524
GEO4-2524	GEO4-2520
GEO4-6004	GEO4-6006
GEO4-6006	GEO4-6004

1.8 Conversion of former courses

In the renewed Energy Science programme we have changed and updated courses. The overview below provides an overview of the conversion of former courses.

Table 4: Conversion of former courses

Old course 2023/2024	New course 2024/2025
Energy in the Context of Sustainability (GEO4-2514)	Challenges of Energy Transitions (GEO4-2525)
Students that have not passed Energy Conversion Technologies I (GEO4-2502) <i>or</i> Energy Conversion Technologies II (GEO4-2503)	Energy Conversion Technologies (GEO4-2526)
Students that have not passed Energy Conversion Technologies I (GEO4-2502) <i>and</i> Energy Conversion Technologies II (GEO4-2503)	Energy Conversion Technologies (GEO4-2526) <i>and</i> Energy Systems Integration (GEO4-2527)
Photovoltaic Solar Energy Physics (GEO4-2513)	Photovoltaic Solar Energy (BETA-MPHSE)

1.9 Extra-curricular programmes

Profile Complex Systems

The world around us is becoming more and more complex. A small change in one variable can have significant and unexpected impacts, resulting in e.g. traffic jams, a sudden epidemic or a financial crisis. Complex Systems are often the driving force behind these phenomena. As a whole they possess characteristics which cannot be deduced simply from its individual parts, but only from the way in which they interact. Predicting a traffic jam, for example, is hardly possible by only studying the behaviour of individual drivers. The whole is bigger than the sum of its parts.

The profile Complex Systems is an interdisciplinary profile for ambitious students from different Master's programmes, who want to work on modelling solutions within the field of Complex Systems. The profile gives you the opportunity to broaden your view and knowledge from an interdisciplinary angle and widens your opportunities for further development. It prepares you for a career in interdisciplinary fields in both business and science.

This profile can be fitted into your Master's programme, 30 EC in total. The total number of EC will NOT be increased by completing the Master profile Complex Systems.

For further information and to apply for this Master profile please contact the coordinator Complex Systems, [dr. Arie Staal](#). Also, see appendix 6 in paragraph 3.3, and the [website](#).

Young Innovators programme

Are you curious, innovatory, entrepreneurial, intellectually versatile and socially responsible? Do you want to get more out of your Master's programme and learn to work across disciplinary boundaries? Do you want to do both research and actively (co-)create innovative initiatives that will make the world a better place? And do you want to take ownership over your own learning process? Then the Young Innovators programme might be of interest to you!

As a Young Innovator you will be working on the three pillars the program is built upon: personal leadership, social innovation and being an impact community. One of the ways in which this takes place is by working on current societal challenges for at least the first half year, such as sustainable housing for refugees, food waste, off-label drugs, transition labs, how to make a city safer by art, accessible medicine and more. Together with an interdisciplinary team of students and inspiring sessions with coaches and experts you go through the journey of making this world a better place!

The programme is an English selective 15 EC honours course at graduate level, to be taken on top of any Master's programme. The programme is accessible to all UU Master's students.

If you want to know more or would like to apply, please visit the [website](#).

Other masters honours programme

Other university-wide Honours programmes are:

- Graduate Honours Interdisciplinary Seminars (GHIS)
- Leadership Programme
- UniCity

See the [Master's Honours website](#) for more information.

2 Didactics, study planning and supervision

2.1 Educational format

Activating education

The educational philosophy of the Master's programme is problem-oriented, which calls for a proactive teaching format. Problem-oriented education takes a concrete problem as the point of departure for the learning process. The acquisition of knowledge and skills is related to the analysis and/or solution of the problem in question. "Activating education" is a form of teaching whereby the students themselves are largely in control of the learning process. They take their education into their own hands by doing individual or group assignments, taking part in debates or simulation games, and applying the methods they have learned. A proactive educational format calls for intensive back-up on the part of the instructor in the form of study guidelines, instructions, manuals, and feedback on the students' performance. The students mainly work in small groups.

Active input of instructors and students

The objective of the Master's programme is to offer an inspiring and high-quality environment for study. The goal is to work together with the student to maximise the transfer of knowledge. All of the instructors and support staff involved in the programme operate on the assumption that if the student is fully dedicated to the study, they can offer the greatest possible guarantee that the student will pass all of the individual courses.

Required attendance

For various parts of the programme, attendance is mandatory. This applies to working groups, field trips, simulation games, etc. The course manual for each course stipulates exactly which sessions the student is required to attend. As stated in article 4.4 of the Education and Examination regulations, exceptions to mandatory attendance can only be made if students can prove that their absence is due to reasons beyond their control (special circumstances due to e.g. illness or family circumstances).

Report absence in time

If students cannot attend a preliminary or other exam, obligatory lecture or working group, they must register their absence via this [form](#) prior to the meeting, and by 9.30 a.m. at the latest.

Absence or illness does not relieve you of your obligation to perform to the best of your ability. In other words, if you have not been able to complete a paper or give a presentation, contact the Course Coordinator to find out if it can be rescheduled for another date.

If the quality or quantity of your attendance has been insufficient, the Course Coordinator may exclude you from the remainder or part of the course.

Testing

There are multiple points during a course in which the student is tested. Thus, the final evaluation for a course does not depend solely on a final exam. As a rule, there are opportunities for feedback and improvement, depending on how the course is designed. These opportunities are set forth in the course manual. If during the course the student satisfies all the effort requirements and does not receive a satisfactory grade but does receive a final grade of at least 4,00 before rounding, one opportunity will be given to take a supplementary test. To prevent freeriding behaviour in group

assignments, it may be demanded that a sufficient grade (at least 5.50) is scored for certain individual, partial tests. The specifics can be found in the Education and Examination Regulations and the course manuals.

Plagiarism, Code of Originality

Energy Science is a research oriented Master's programme, which means that its students are taught how to perform scientific research and which demands their approach and results need to meet. Since science is about developing new knowledge, in all phases of the Master's programme, much attention is paid to the originality of the students' achievements, for instance with the aid of advanced software. All scientific research, including that of a student, builds on the results of the work of other researchers, either in positive or in negative sense. Those other researchers deserve the credits for their work, in the form of a correct acknowledgement.

In short: quoting is allowed (and even necessary), but copying the work of others (including AI software) and presenting it as if it were one's own, is plagiarism: a huge sin in science. Students who plagiarise, run tremendous risks: in the worst case scenario they are expelled from the programme for a year. The Education and Examination Regulations of the programme draws up the sanctions with which a student who is caught plagiarising, will be confronted.

2.2 Study management and supervision

Introduction for new students

There will be an [introduction](#) for Master novices in the first week of their first semester, organised by ES and its study association NRG. Both social issues and general information will be presented during this introduction. Its objective is to help new students feel at home at the ES Master's programme and the faculty, as soon as possible. Focus will be on meeting your fellow students, getting to know the ES-programme itself, its professors, mutual rights and obligations, information desks and the buildings where you will spend much of your time in the next couple of years.

Study planning and advice

Two individuals play a key role in planning and supervising a student's study: the Programme Leader [dr. Matteo Gazzani](#) and the and the Study Advisor, [Jana Scheuer MSc](#).

The Programme Leader advises students on the programme they will be taking and on the choices that can be made within it. These choices relate to the content, timing and host organisation of elective courses and options for thesis research (which could include an internship elsewhere).

During your entire programme, you can go to the Study Advisor, for neutral and confidential advice on everything that is related to your studies. This can be on issues that are directly study-related, for example study planning, study delay, electives, dissatisfaction with the programme, or a potential conflict with a teacher or supervisor. But you can also discuss more personal issues that might be of influence on your progress, such as illness, disability, pregnancy, family circumstances, top-class sports, motivation issues, et cetera. When necessary, the Study Advisor can refer you to a Student Counsellor, Student Psychologist, or for example a study skills class.

In the unfortunate situation that you expect to suffer study delay due to personal circumstances, it is important to contact the Study Advisor as early as possible. Together you can discuss how you could

deal with these circumstances and perhaps the programme could offer you a concession (e.g. extra time for an exam or paper)

The Study Advisor is located in the Vening Meinesz building A, room 1.08 and available from Tuesday till Friday. Students can also make an appointment via this [link](#). The Study Advisor can be reached via this email address: studyadvisor.sd.msc@uu.nl. Please mention your student number and name of the programme in the subject line.

The Study Advisor is a member of the Dutch National Society of Study Advisors and works according to the code of conduct of this professional society, see www.lvsa.nl for details. The Study Advisor is in regular contact with other Study Advisors of the Faculty and University, which makes peer feedback and cooperation possible. If the Study Advisor is not available due to illness or holiday and you urgently need a confidential consult, please feel free to [contact](#) any of the other Study Advisors of the Faculty of Geosciences.

2.3 Course enrolment and automatic graduation

Semesters and blocks

Classes take place during two semesters, each of which can be divided into two blocks, or periods of 9 or 10 weeks. In Appendix 3.5 and 3.6 you will find the start and end dates of each block for this academic year.

Timeslots

At Utrecht University a so-called timeslot model is used to schedule courses to fit into fixed parts of the week. Using this model prevents overlap in a schedule. In this way it is easy to see if two courses can be taken in the same period.

The Utrecht University timeslot model consists of five slots (A, B, C, D, E).

Timeslot A = Monday morning and Wednesday morning

Timeslot B = Tuesday morning and Thursday afternoon

Timeslot C = Monday afternoon and Thursday morning

Timeslot D = Wednesday afternoon and Friday

Timeslot E = Monday evening until Friday evening

Morning = 09.00-12.45 hours, afternoon = 13.15-19.00 hours, evening = 18.00-21.45 hours.

Periods and timeslots have been put into the course schedule (§ 1.5). Changes to the course schedule are still possible. The final scheduling (time and lecture room) of each course can be found four weeks in advance in [MyTimetable](#) (pc) or the [MyUU app](#) (smartphone/tablet). Also check the Blackboard e-learning environment of your course for the latest changes in the course programme.

Course enrolment

In order to participate in a course, you need to be enrolled for it: if you are not, you will not have access to the course and its supporting facilities such as Blackboard; neither will results be registered. No enrolment = no participation = no result.

As a student, course enrolment is your own responsibility! You decide which courses (elective and mandatory) you want to take in each block. Keep in mind possible entrance requirements to a course;

students that do not adhere to entrance requirements cannot enrol for the course and/or will be removed from the course.

Course enrolment is only possible via OSIRIS, and only within the official enrolment periods, which usually fall in the beginning of the previous block (for the dates of the Faculty of Geosciences, please see Appendix 3.6). Students that enrol on time are generally secured of a place in the course; however, courses that have a limited capacity have certain placement rules. Just before the start of the block, there are 2 days for late enrolment, in case you want to switch courses. Please note: this is only possible for courses that are not full yet; participation is therefore not guaranteed.

If you want to enrol for a course outside the Faculty of Geosciences, there could be different enrolment dates; at some Faculties, students enrol only once per semester.

Each period you can enroll for a maximum of two courses (15 EC) of the Faculty of Geosciences via OSIRIS (code GEO*-*). Any student that wants to take a third course, needs permission of the programme. If the 3rd course is a course of one of the Master's programmes of the Department of Sustainable Development, you can fill out a [digital form](#).

Please note:

The request needs to be submitted during the regular enrolment period. **After the regular enrolment period and during late enrolment periods, no requests for taking a 3rd course will be dealt with** and therefore they will always be denied. You have to be enrolled for your other courses in OSIRIS before submitting your request for an additional course.

- The additional course should be a course from the Department of Sustainable Development.
- Students are not allowed to participate in more than one course in the same timeslot.
- Enrolment in an additional course may be declined by the Director of Education in case of insufficient study progress and/or insufficient capacity for a course.

Only as an exception and based on sufficiently important reasons will the programme allow a student to take three courses in one period. A request for taking a 3rd course will need to address the criteria mentioned below and these will be checked:

- Motivation: what is the student's motivation?
- Circumstances: are there any special, personal circumstances?
- Urgency: is it, at this point in time, necessary that the student takes three courses at once?
- Feasibility: can the student handle taking three courses at the same time? The following issues will be looked at in order to check this criterion:
 - Study progress.
 - Study results so far
 - Has the student taken three courses before and if so, were they all completed successfully?
- Is the Master's thesis one of the three courses the student wishes to take? If this is the case, the request will not be granted.
- Timeslot: if the 3rd course falls in the same timeslot as any of the other courses you will be taking, the request for a 3rd course will never be granted.
- Entry requirements: does the student fulfil the entry requirements of the 3rd course?

Students who do not adhere to the enrolment periods can only under very special circumstances be placed on a course after permission from the Student Affairs Office, which can be contacted via

studentaffairs.geo@uu.nl. It is important that students always include their student number when communicating with the Student Affairs Office. The Student Affairs Office (NOT the lecturer of the course!) decides whether a reason for not enrolling during the enrolment period is valid. If the Student Affairs Office decides a student does not have a valid reason, this student will not be able to attend the course and no course results will be registered. In other words: enrol early, as early as possible, for the courses that you want to take in the next block! This also applies to the obligatory courses!

Automatic graduation

When you are due to finish your programme, you will receive a message from the student administration about your graduation. After it has been verified that you have fulfilled all requirements of your programme, the Board of Examiners will be asked to judge your file. Please note: in order to graduate, you need to have fulfilled all requirements: all grades are known and registered in OSIRIS, you have paid all tuition fees, and you have uploaded your thesis to OSIRIS (after your thesis has been approved, it has to be uploaded into the thesis archive). Within one month after the grade has been registered in OSIRIS, you will receive a request by email to upload the reviewed thesis (in PDF format) through OSIRIS Case for the purpose of the thesis archive. The thesis archive is only accessible to employees.

Under certain conditions, it is possible to postpone your graduation, see article 6.1.6 of the Education and Examination Regulations.

In order to actually receive your degree certificate or to pick it up at the Student Affairs office, you need to fill out an exam-registration form. If you want to attend a graduation ceremony, strict deadlines regarding registration and handing in of any documents will be maintained.

Automatic graduation does not mean you will be de-registered automatically from the programme. You will need to take care of this yourself and this cannot be done until you have received formal confirmation of your graduation from the Board of Examiners.

2.4 MyTimetable and MyUU app

Utrecht University has two main channels that allow you to look into the schedule of your course. The schedules are published on those channels four weeks before the start of the course. Along with viewing the complete schedule of your courses it is also possible to check the schedule of your own group, as soon as the lecturer informed you on the division of the groups. You can log in with your Solis-ID and password.

You can make use of [MyTimetable](#) in your browser. Along with a more clear representation of the schedule, it is also possible to synchronise your own schedule with your diary. On your smartphone you can use the [MyUU-app](#). Download this application and always have your schedules and grades from OSIRIS at hand. The MyUU-app is available for Android and iOS.

2.5 Study abroad

Studying abroad means broadening your horizon, meeting new people, exploring different cultures, and expanding your field of study. If you are interested in going abroad there are many possibilities. You can follow courses, do an internship or conduct research. Make use of what the university in general, but the Faculty of Geosciences in particular, has to offer you.

A lot to organise?!

Don't worry, just make sure to start planning your period abroad in time. Do you want to study abroad? Start via the International Office [Online](#). Answer these questions:

- Where would you like to go to?
- What do you want to do?
- Does this university have an agreement with UU?
- Which courses would you like to attend?
- When would you like to go?

Once you have found an answer to these questions, contact your Study Advisor to connect your period abroad to your study plan in Utrecht. Please ask also permission from your Master's programme leader.

After you have consulted with your Study Advisor, The International Office of Geosciences is there to guide you through the process. Please click for [opening hours](#). It is also possible to make an appointment by email: international.geo@uu.nl. Besides, please visit our study association [EGEA](#) (Princetonplein 5; by appointment only). EGEA members generally have a lot of experience with studying abroad. They can help you out with a lot of practical matters (such as housing, experiences and tips & tricks). In October several orientation meetings take place, organised by the International Office. For more information or dates please look at this [website](#).

Practical matters

Once you've decided to study abroad, you can apply for an exchange in OSIRIS. You have to choose a top 3 of favourite universities. After selection, you will be nominated to the host university and you will receive an invitation to apply at this university. Please do keep in mind the deadlines for application! More information about how to apply and which deadlines to bear in mind can be found on the [website](#). For faculty destinations, go to the [destination page](#) and select Geosciences. For the Faculty International Office website, look [here](#).

Good to know:

- Eligible for studying abroad during their master are all students with formal permission from their programme coordinator (in case of taking courses at/being enrolled at a foreign university) or thesis supervisor (in case of thesis research abroad); see also below. To obtain permission please use the 'study plan for studying abroad'.
- After your programme coordinator or thesis supervisor has signed the study plan, upload it in OSIRIS. Credits obtained at partner universities can quite often easily be transferred to your academic record in Utrecht: study abroad doesn't necessarily cause delay in your programme! It is necessary to request permission from the Board of Examiners to follow these subjects. You can ask for permission via OSIRIS Cases.
- If your destination is within Europe, either for courses (exchange) or an internship, you are eligible for an ERASMUS grant. Monthly financial support to make your study abroad easier than it already is. More information
- If your destination is outside Europe, please have a look at [here](#) and find out if you are eligible for the options mentioned.
- If you're going abroad, you'd better put your public transport (OV) student chip-card on hold (public transport card for Dutch students). By doing this, you can apply for a monthly travel

allowance. Forms for this allowance are to be signed by the Student Affairs office/International Office.

Going abroad: apply in OSIRIS

If you go abroad for courses, an internship or thesis research it is mandatory to apply for it in Osiris:

- Go to [OSIRIS Student](#)
- Click on the 'Stay Abroad' tab*.
- Click on 'New request' (bottom left).
- Select the correct application request: 'Stay abroad other'.
- Fill out the form and upload your approval. In case of taking courses abroad (and being enrolled with a foreign university), request approval from the programme leader (who needs to sign the form). In case you go abroad to execute (part of) your thesis project (and you are not enrolled at a foreign university), ask formal approval from your thesis supervisor (in this case an email suffices).
- Click on 'Submit'.

*A new window will open in the old OSIRIS student lay-out. In this window, please click on 'stay abroad' again. You may have to log in again in case your session has expired.

2.6 Student Affairs office Geosciences and Student Services

The [Student Affairs Office Geosciences](#) is the primary point of contact for students in the Faculty of Geosciences. It provides students with general information and answers questions about topics such as enrolment for courses, course timetables, examinations, grades and credits.

Address: Victor J. Koningsberger Building
Budapestlaan 4a-b, Utrecht

Opening hours: Mo-Fri 10.00-12.00
Opening hours may be limited during academic holidays.

Phone number: +31 30 253 9559

Email: studentaffairs.geo@uu.nl

Website: [Student Affairs Office Geosciences](#)

Student Services may be contacted for information on a wide range of issues relating to studying and student life. These include admission, application and enrolment, tuition fees, financial assistance, working while studying, insurance, facilities for outstanding student athletes, student housing, student organisations and studying with a disability or chronic illness.

Address: Heidelberglaan 6, Utrecht
P.O. Box 80125, 3508 TC Utrecht, The Netherlands

Opening hours: Mo-Fri 10.00-12.00 and 14.00-15.00
Opening hours may be limited during academic holidays.

Phone number: +31 30 253 7000

Email: Studentservices@uu.nl

Website: [Student Services](#)

For questions about ICT, please contact the Service Desk by email: servicedesk@uu.nl.

2.7 Responsibility for the programme

Board of Studies

Within the Utrecht Graduate Division (UGD) the Master's programme Energy Science is part of the Graduate School of Geosciences, to which all Master students and PhD-students of the Faculty of Geosciences belong. The School supervises the quality of the programme and the admission of its students. All Directors of Education and Directors of Research of the Faculty of Geosciences are members of the Graduate Board of Studies, as well as a PhD student and a student from one of the MSc programmes of the Faculty. Chairman is the Dean of the Faculty, prof. dr. Wilco Hazeleger.

Master Education Committee

This is a joint committee of chosen students and lecturers appointed by the Dean to advise on the rules on teaching and examination and its implementation and about other matters concerning the study programmes. [More information.](#)

Board of Examiners

The Board of Examiners is responsible for the examination of students. The Board of Examiners will determine the examination results as soon as the student has submitted sufficient proof of the tests taken. This Board also decides about deviations (e.g. exemptions) in the programme and the approval of certain elective courses (see appendix 3.1 of this catalogue). Requests about exemptions, elective courses or other issues for the Board of Examiners, can be handed in via OSIRIS Cases.

In 2024-2025 the Board of Examiners consists of:

- Prof. dr. M. Gibescu
- Prof. dr. H. Runhaar
- Prof. dr. F. Avelino
- Dr. M. te Beest

The secretary to the Board of Examiners can be reached via [email](#).

Teaching Institute

The Teaching Institute of the Copernicus Institute of Sustainable Development is responsible for the organisation, coordination and quality assurance of the educational elements of the various courses offered by the department. The Director of Education, prof. dr. Karin Rebel, is the Teaching Institute's head and is assisted by a management team, which includes the programme leaders of the Bachelor's and Master's programmes. The programme's leader, [dr. Matteo Gazzani](#) is responsible for the management of the programme Energy Science.

Complaints

If you have a complaint or a suggestion, there are various courses of action available. You may opt for an informal approach: finding out whether the faculty Student Services can deal with your complaint, suggestion or comment about education and related issues. If this is not possible in the short term, it will ensure that your complaint is passed on to the appropriate person. You can also approach the person who caused the problem and attempt to reach an amicable solution with them.

If you consider the complaint to be serious enough, or if it has not been solved to your satisfaction, you can submit a formal complaint. Formal complaints are submitted using the [digital complaints form](#).

Your complaint will be dealt with by the faculty's complaints coordinator. The formal complaints procedure will then take place as follows:

- A copy of the complaint will be sent to the person to whom the complaint refers.
- The complaints coordinator in the faculty of Geosciences will ask both you and the person you are complaining about for an explanation/reaction (i.e. you will both be 'heard').
- The complaints coordinator then draws up recommendations for the Dean of the faculty.
- The Dean will consider the complaint formally.

Dealing with the complaint must take no longer than 10 weeks. It is, of course, possible for a solution to be found during the procedure. The procedure can then be terminated. The Geosciences complaints coordinator is [Robert van Wijk](#), MSc. More information on complaints, objections and appeals can be found [here](#).

2.8 Evaluation and quality assurance

The Faculty of Geosciences values the high quality of its programmes and has therefore set up a quality assurance system. Quality assurance provides information about the quality of individual courses and the programme as a whole, academic climate and students' progress and performance. Its most important goals are improving education and organization, and increasing the visibility of the quality of the programme.

One part of quality assurance with which you as a student will be dealing regularly is evaluations. Every course is evaluated afterwards and the results of this course evaluation are discussed in the Education committee and the Management team of the programme. Evaluations provide important information for the course coordinator and lecturers to improve their course. All Geosciences students can view the evaluation results of the Faculty of Geosciences on Blackboard.

During the course, we also work on improving quality. Course feedback groups are active in each course in order to mend any problems in an early stage. For each course, such a group consists of 4-5 students who will be meeting the lecturer in the break and will be talking about the course so far. The purpose is to find out what is appreciated, what is going well and what practical issues can be improved. This does not concern aspects which are already fixed, such as the choice of literature, set up of tutorials or class times. It is all about fine-tuning, e.g. are the lecture slides readable, can everyone hear the lecturer, has information been put on Blackboard on time, etc. In the study guide of the course you can find further information about the course feedback group in your course.

Finally, at the end of every other academic year (May/June) a written year evaluation will be carried out among the students. The year evaluation it is not about an individual course but about issues that transcend the course, such as coherence/set-up of the programme, electives, workload and effort, level, thesis supervision, challenge, atmosphere and lecturers. The results of the year evaluation will be discussed in panel meetings with the director of education, programme leader and a student delegation.

2.9 Career perspectives and Career Services

Career perspectives

The development of sustainable energy systems is one of the grand challenges of this century. Research institutes as well as industry, governmental and non-governmental organizations are active in the quest for increasing energy efficiency and more renewable energy sources. Many existing and new companies are taking up the challenge to develop new business in this area and there is a large demand for energy specialists,. Job opportunities include:

- Professional occupations: Graduates are able to find employment with (renewable) energy companies, (e.g. SkyNRG, Senfall, Spectral, , Gasunie, Vattenfall, RWE, Eneco, Tennet, Alliander); public sector (e.g. Ministry of Economic Affairs and climate, Ministry of agriculture, nature and food quality; Provinces, municipalities); consultancy (e.g. Guidehouse, DNV GL, KPMG, DHV, Arcadis) and NGOs (e.g. Greenpeace, WWF, Stichting Natuur en Milieu). Graduates can also find positions at international bodies, such as the European Union, the Environment Foundation for Africa, the Organisation of American States and the International Energy Agency.
- Academic occupations: The programme prepares students for a Ph.D. position, ultimately leading to professions in scientific research. Possible employers: Universities, RIVM, TNO and similar research institutes in other countries.

Alumni network

The Energy Science programme likes to stay in touch with its alumni. A LinkedIn group has been created and is named “Energy Science Alumni”. After graduation students are invited to subscribe. The student association NRG organises alumni events regularly.

Career Services

The start of your Master’s programme will also be the start of your career. With the activities of Career Services you will be prepared for the future after your graduation. Within your Master’s programme job-market orientation will receive much attention. You will be invited to guest lectures, company visits and be given opportunities to meet alumni. During your Master you may follow an internship as part of your Master’s thesis in which you will receive insights of what it could be like working for a company which shares your mission or values. It is a helpful experience to let you familiarise yourself with a company or organisation and the kind of work you want to do after your Master.

During your Master, Career Services offers workshops to guide you on your first steps towards the job market, see Figure 2. Starting with mapping your interests, talents, (soft)skills and how transform this information into a CV and how to prepare yourself for a job interview. Apart from these trainings there will also be special Geosciences workshops with topics such as ‘How to kickstart your sustainable career’.

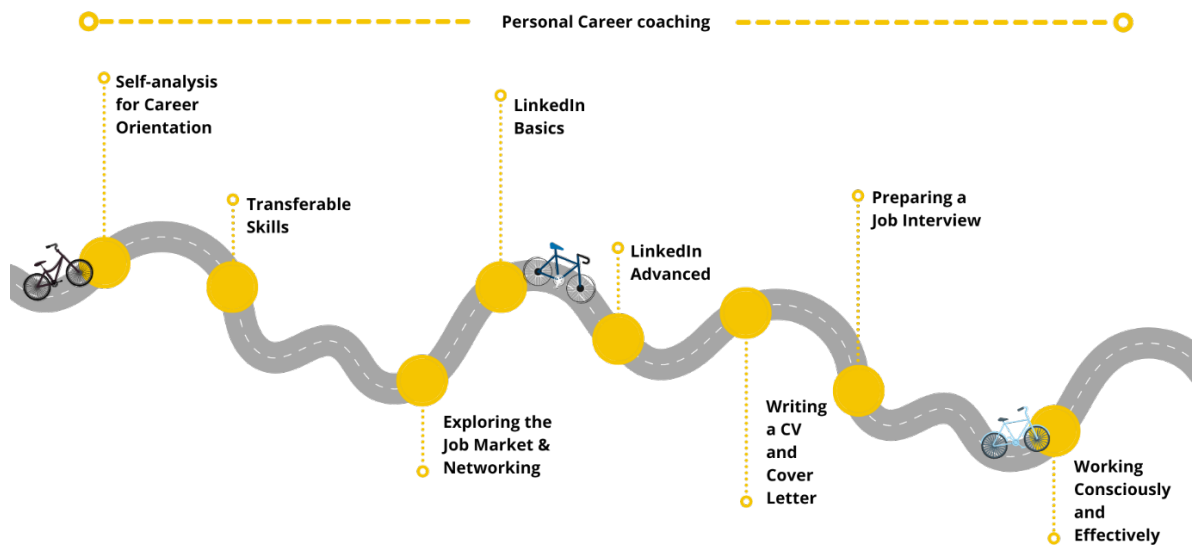


Figure 2: Overview of career services

You can also [book an appointment](#) to meet with your Career Officer to look at specific questions that you might have. Or you can send an email to careerofficer.geo@uu.nl

On the [Career Services website](#) you can find tests you can do about your personality, competencies, work values and many more.

Career Services hosts several events during the year such as the Career days, which you can attend to get information about companies, organizations, and NGO'. You will be notified about these events throughout your Master. Check the website of your Master's programme under [Career Services](#).

2.10 NRG the study association of Energy Science

NRG is the study association for all students in the Master Energy Science. The association was founded to support the contact and cooperation between its members, alumni, the university as well as companies and organizations linked to energy and sustainability.

NRG organizes in-house days with energy-related companies, excursions, and inspiring talks by professors and industry experts. Furthermore, the association is involved in educational quality control by taking a seat in the faculty's educational committee. Next to serious activities, NRG also offers fun and social activities such as monthly drinks, an introduction week, and the annual study trip (Copenhagen 2022; Berlin 2021; Madrid 2018; Vienna 2017). NRG also hosts the annual Utrecht Energy Day, where many companies from the industry meet up with Energy Science students and other students interested in the world of energy. These are great activities to meet your future employers and learn about the energy sector!

If you want to know more about NRG and/or you want to become a member, visit their [website](#), send them an [email](#), or follow them on [LinkedIn](#).

3 Appendices

3.1 Rules for choosing elective courses

1. Students in the Master's programme choose elective courses from another or their own Master's programme. Courses that are obligatory in the exam programme cannot be used as elective courses.
2. Honours programmes for Master's students (e.g. Young Innovators, GHIS, Leadership Programme) do not count towards the electives in the programme.
3. Electives as mentioned in the student's academic progress review in OSIRIS are pre-approved by the programme leader and by the Board of Examiners. Students can enroll for those courses via OSIRIS. It remains the student's responsibility to make sure that the points mentioned under 6 d-f are met. If the course is from another department than Sustainable Development, it may be that other students have priority and that they are therefore placed on a waiting list.
4. It is possible to choose other courses than the pre-approved courses mentioned in OSIRIS. Any non-pre-approved elective courses must be subjected in advance to the programme leader and the Board of Examiners for approval. The programme leader will advise the Board in this matter.
5. The application for a non-pre-approved elective is done by a written request (application form) to the programme leader. Written information on the content, the level, and the study load of the course (preferably by means of a copy of the course's description from the course catalogue) must be attached. The 'Application Form Elective courses SD' can be found in the Blackboard community Energy Science.
6. The programme leader tests the proposed elective course(s) on the following criteria:
 - a. It must be thematically linked to the Master's programme;
 - b. It concerns a course at master level (M);
 - c. There is no overlap in content with courses still to be taken or already taken.The student is responsible for making sure that:
 - d. The course is available to students of the ES programme;
 - e. The student fulfills the entrance requirements of the course (if applicable). Actual participation is only possible if students satisfy the course's entrance conditions; in case of doubt they should contact the course coordinator first;
 - f. The course is not taught in the same period and timeslot as another course the student has selected.
7. If the programme leader has declared that the elective course(s) meet the criteria under 6a-c (by signing the application form or approval via an email message), the student uploads the application form (signed or with the approval email attached) and the course information to the Board of Examiners via OSIRIS Case. The Board of Examiners takes the final decision on whether or not the elective is approved.
8. In the programme's course schedule, room has been reserved for taking electives. However, the student is free to deviate from this planning, e.g. because they wish to take an interesting elective course in another period. If this causes delay in the study planning, it is the responsibility of the student! Students are therefore advised to take their electives in the reserved periods and timeslots, or use a part of the time planned for their internship and/or Master's thesis.

3.2 Education and Examination Regulations Graduate School of Geosciences 2024-2025

The Education and Examination Regulations set out the degree programme-specific rights and obligations of students on the one hand and of Utrecht University on the other hand. The University's [student charter](#) contains the rights and obligations that apply to all students.

These Regulations were adopted by the Dean of the Graduate School of the Faculty of Geosciences with the approval of the Faculty Council and the Education Committee on 25 June 2024.

This is a translated version of the officially valid Education and Examination Regulations in Dutch (Onderwijs- en Examenregeling).

SECTION 1 – GENERAL PROVISIONS

art. 1.1 – applicability of the Regulations

These Regulations apply to the teaching and examinations of the Master's degree programmes in Development Studies, Earth Sciences, Energy Science, Environmental Sciences, Human Geography, Human Geography and Planning (research programme), Spatial Planning and Science and Innovation (hereinafter called the degree programmes) and to all students registered for these degree programmes and to all students who apply for admission to these degree programmes in the academic year 2024-2025.

The degree programmes and individual Master's programmes are run by the Graduate School of Geosciences within the Faculty of Geosciences.

art. 1.2 – definition of terms

In these Regulations, the terms below have the following meanings:

- a. academic vacation periods: periods without any teaching obligations for teaching staff and learning obligations for students, as laid down in the academic calendar for the degree programmes.
- b. academic calendar: the division of the academic year periodically determined by the Executive Board
- c. the Act: the Dutch Higher Education and Research Act 1992 (*Wet op het Hoger onderwijs en wetenschappelijk onderzoek 1992, WHW*).
- d. Board of Studies: the Board of the Graduate School of Geosciences.
- e. component: a unit of study (course) within the degree programme, as included in the prospectus and the University Course Catalogue.
- f. course: the whole of the education and testing of a component.
- g. course guide: document specifying for each course the aim and content of the course, the exit qualifications, effort requirements (such as the attendance and test requirements) that a student must meet to achieve the exit qualifications and to qualify for a final grade, required literature, the way in which the final grade is calculated, the timetable and the instructional formats, name and availability of the course coordinator.
- h. course period: part of the academic year, the start dates of which are laid down in the academic calendar and the number of weeks in the calendar of the degree programme.
- i. credit: a value expressed in EC, where the study load is expressed as one credit being equivalent to 28 hours of learning. The European Credit Transfer System (ECTS) ensures that credits are comparable within Europe.
- j. degree programmes: the Master's degree programmes referred to in Art. 1.1 of these Regulations, consist of a coherent whole comprised of units of study. A Master's degree programme may include several Master's programmes.
- k. Education provision: the provision granted by the Director of Education to a student with a disability or chronic illness, which outlines the necessary and reasonable facilities to which the student is entitled;

- l. effort requirements: phrase used for all the requirements that the student must meet during a course in order to be eligible for a final grade. These effort requirements are described in the University Course Catalogue and laid down in the course guide (see above).
- m. examination: the final examination of the degree programme that is passed if all obligations of the entire Master's degree programme have been fulfilled.
- n. examiner: an assessor whose competence has been determined by the Board of Examiners of the program.
- o. International Diploma Supplement: the annex to the Master's degree certificate, which includes an explanation of the nature and contents of the degree programme (partly in an international context).
- p. semester: part of the academic year (roughly 5 months), the start and end dates of which are laid down in the academic calendar. The academic year is divided in two semesters: semester 1 (course period 1 and 2) and semester 2 (course period 3 and 4).
- q. student: a person who is registered at the University to take courses and/or sit the tests and final examination of the degree programme.
- r. Student Affairs Geosciences: student information desk and student progress administration unit of the Faculty.
- s. test: interim examination as referred to in Art. 7.10 of the Act.

The other terms have the meanings ascribed to them in the Act.

SECTION 2 – ADMISSION

art. 2.1 – admission requirements of the degree programmes

1. The holder of a Dutch or foreign higher education degree, equivalent to a Dutch bachelor's degree, who possesses knowledge, understanding and skills as specified in the programme-specific component of the degree programme concerned, can be admitted to one of the Master's programmes.
2. Selection of students is based on a review of the following core competences of applicants as specified in the programme-specific component of the degree programme concerned.

art. 2.2 – English language (for Master's Degree Programmes taught in English)

1. Registration for the degree programmes is possible only after it has been demonstrated that the requirement of adequate command of the English language is fulfilled. Deficiencies in previous education in English must be made up before the start of the degree programme by sitting one of the following tests:
 - IELTS (International English Language Testing System), academic module. The minimum required IELTS score (overall band) is: 6.5 with at least 6.0 for the components 'writing, speaking, listening and reading'.
 - TOEFL (Test of English as a Foreign Language). The minimum required TOEFL score is 93 (internet-based test) with at least a score of 24 reading, 22 listening, 20 speaking and 20 writing.
 - Cambridge EFL (English as a Foreign Language) Examinations, with one of the following certificates:
 - Cambridge English C1 Advanced (CAE). Minimum score: 176 total, 169 writing.
 - Cambridge English C2 Proficiency (CPE). Minimum score: 180 total, 169 writing.
2. The holder of a university Bachelor's degree awarded in the Netherlands fulfils the requirement of adequate command of the English language.

art. 2.3 – admissions procedures

1. Responsibility for admission to the degree programmes of the Graduate School and the various Master's programmes lies with the Board of Admissions of the Graduate School.
2. In order to determine eligibility for admission to the degree programme, the Board of Admissions will consider and evaluate the knowledge, understanding and skills of the applicant. The Board may request experts within or outside the University to assess the applicant's knowledge, understanding and skills in particular areas, in addition to a review of written documents of qualifications gained.

3. In order to determine eligibility for admission to a programme within the Master's degree programme, the Board of Admissions will examine whether the applicant meets the admission requirements referred to in Art. 2.1(1) or will meet them in time. In its review, the Board will include the applicant's core competences referred to in Art. 2.1(2), as well as the applicant's knowledge of the programme's language of instruction. On this basis the Board of Admissions will assess whether the candidate is able to achieve the exit qualifications of the Master's degree programme with sufficient effort within the nominal duration of the programme.
4. A request to be admitted to the Master's degree programme and a specific programme must be submitted to the Board of Admissions before the relevant deadline on the prospective student website (www.uu.nl/masters or www.uu.nl/internationalmasters). Requests submitted after these deadlines will not be considered. The decision not to process the request refers to the possibility of appeal to the Examination Appeals Board.
5. The applicant will receive written notification whether or not he or she has been admitted to the degree programme and a specific Master's programme. The possibility to appeal to the Examinations Appeal Board will be indicated in this notification.

art. 2.4 – conditional admission decision: pre-Master

1. If the outcome of the evaluation referred to in Article 2.3, paragraph 2, into the knowledge, insights and skills of the candidate is that the candidate does not yet meet the admission requirements referred to in art. 2.1, but will meet them after having passed a pre-master course tailored to the Master's Programme, the candidate will be given a conditional admission decision.
2. This conditional admission decision will state that the candidate concerned will be admitted to the Master's Programme if:
 - a. the pre-master course with the courses described therein and the study load, expressed in credits, has been passed
 - b. within the period stated in the admission decision.
3. The candidate will receive written confirmation of the conditional admission decision, which will point out the possibility to appeal to the Examinations Appeals Board.
4. After the conditions referred to in paragraph 2 (a) and (b) have been met, the conditional admission decision will be converted into a definitive admission decision.
5. After the expiry of the period referred to in paragraph 2(b), the student may no longer participate, or participate again, in the pre-master course of Utrecht University.
6. In the event of insufficient qualitative progress and/or participation in the defined deficiency programme, the Board of Admissions of the Graduate School may exclude the student from further or repeated participation.
7. The tailored package of courses, referred to in paragraph 1, is open only to candidates who hold the nationality of an EU/EER member state or Switzerland, or do not hold this nationality but do hold a residence permit that entitles them to statutory tuition fees, and have completed their previous education in the Netherlands.
8. The Board of Admissions may deviate from the requirements referred to in paragraph 4 in special cases. In any case, special dispensation will be given to refugees with residence status and refugees with a W-card, who have applied for asylum and have not yet received a final decision on their application. Deviation from the requirements is not possible if the candidate requires assistance from Utrecht University in applying for a visa, where the university acts as a sponsor.

SECTION 3 – CONTENTS AND STRUCTURE OF THE DEGREE PROGRAMMES

art. 3.1 – aim of the degree programmes

See degree programme-specific component of the degree programme concerned.

art. 3.2 – mode of attendance

The degree programmes in Development Studies, Earth Sciences, Energy Science, Environmental Sciences, Human Geography and Planning (research programme) and Science and Innovation are offered full-time. The degree programmes in Spatial Planning and Human Geography are offered full-time as well as part-time.

art. 3.3 – language of instruction

All degree programmes are taught in English.

Annex 1 states the reasons behind the choice of language policy for the degree programmes.

art. 3.4 – study load

The degree programmes in Earth Sciences, Energy Science, Environmental Sciences, Human Geography and Planning (research programme) and Science and Innovation have a total study load of 120 credits. The degree programmes in Development Studies, Spatial Planning and Human Geography have a total study load of 60 credits.

art. 3.5 – programmes; start dates

1. The Graduate School of Geosciences offers the following Master's degree programmes and Master's programmes.

Master's degree programmes	Master's Programmes
Earth Sciences	Earth, Life and Climate
	Earth Structure and Dynamics
	Earth Surface and Water
	Marine Sciences
Energy Science	Energy Science
Environmental Sciences	Sustainable Development
	Water Science and Management
Human Geography and Planning	Global Urban Transformations
Science and Innovation	Innovation Sciences
	Sustainable Business and Innovation
Development Studies	International Development Studies
Spatial Planning	Spatial Planning
Human Geography	Urban and Economic Geography

The Master's degree programmes prepare students for undertaking research in one or more sub-fields of Geosciences.

2. All Master's degree programmes have one start date a year: 1 September.

art. 3.6 – components of the Master's programmes

See degree programme-specific component of the degree programme concerned.

art. 3.7 – courses taken at another Dutch research university

1. Courses provided by another Dutch research university qualify as optional programme components with the approval of the Board of Examiners. The credits and marks awarded by the other Dutch institution will be used.
2. The Board of Examiners will withhold approval if it is of the opinion that a replication of content exists in relation to courses already completed or yet to be completed by the student. In the event that courses are replicated in terms of their content, either wholly or in part, the Board of Examiners may limit the contribution of these courses to the examination through deduction of credits in proportion to the overlap.

art. 3.8 – courses taken at a foreign research university

1. Courses provided by a foreign research university qualify as optional programme components with the approval of the Board of Examiners. The Board of Examiners will decide whether these courses are at a sufficient academic level.
2. The Board of Examiners will withhold approval if it is of the opinion that a replication of content exists in relation to courses already completed or yet to be completed by the student. In the event that courses are replicated in terms of their content, either wholly or in part, the Board of Examiners may limit the contribution of these courses to the examination through deduction of credits in proportion to the overlap.
3. The degree programme will publish the procedure for contributing courses taken abroad on the student site:
 - stating at what moment and in what manner students may apply for approval for courses taken abroad;
 - giving students the option of applying for approval at such time that they have received a decision from the Board of Examiners by the start of their period abroad.
4. Conversion of credits achieved for courses taken abroad is as follows:
 - a. The credits will be taken over for courses provided by foreign universities within the European Union/European Economic Area that work with the European Credit Transfer System (ECTS) which have been approved by the Board of Examiners with regards to their content and level. Contrary to this, the Board of Examiners may decide to award a different number of credits if it is established that the credits awarded abroad do not correspond to the study hours.
 - b. The credits will be converted for courses provided by foreign universities outside the European Union/European Economic Area that do not work with the European Credit Transfer System (ECTS) which have been approved by the Board of Examiners with regards to their content and level, in accordance with the university-wide conversion table. See www.uu.nl/credit-omrekentabel. The Board of Examiners may deviate from this in exceptional cases.
5. Conversion of grades achieved for courses taken abroad is as follows:
 - a. Foreign grades are converted into the alphanumeric results Pass/Fail; in addition, the original grades and assessment scale will be recorded in OSIRIS. Furthermore, the original results will be printed on the International Diploma Supplement referred to in Article 6.4, stating the information from Nuffic concerning the grading scales at foreign institutions www.nuffic.nl/onderwerpen/onderwijssystemen.
 - b. The foreign university will determine where the cut-off score lies for a pass, and records in the transcript whether the student has passed.
 - c. The foreign results will not count towards the student's average final mark.
 - d. The Board of Examiners will determine whether and how foreign results will count towards determining whether the student has passed with distinction (cum laude).

art. 3.9 – area with negative travel advice

1. Study components that require the student to travel to areas abroad or to the Caribbean territory of the Kingdom for which the Ministry of Foreign Affairs has issued a travel warning of classification red (do not travel) or orange (only necessary travel) that applies to the period that the study component is to be taken cannot be included in the degree programme.
This also applies if the Ministry of Foreign Affairs has issued a negative advice for travel from the Netherlands.
2. At the student's request, on behalf of the Dean the provisions of the first paragraph may be deviated from in exceptional circumstances. Such deviation is only possible if it has been declared on behalf of the Executive Board that there are sufficient guarantees that the health and safety of the student will be safeguarded.
3. In the event that the travel advice classification changes to red or orange while the student is already present in the area abroad or in the Caribbean territory of the Kingdom, the Executive Board may advise students to return to the Netherlands if, having taken account of the local risks and impact of travelling, the Executive Board deems it unwise to remain. Students who do not follow the urgent advice to return cannot include the study component in the degree programme, unless an individual exemption as referred to in paragraph 4 is granted.
4. Upon a request by the student for an exemption from the urgent advice to return, on behalf of the Dean the provisions of the third paragraph may be deviated from in exceptional circumstances. On behalf of the

Dean an exemption from the advice to return may be granted. An exemption can only be granted if it has been declared on behalf of the Executive Board that there are sufficient guarantees that the health and safety of the student concerned will be safeguarded.

art. 3.10 – components taken elsewhere

1. The condition for gaining the degree certificate of the Master's examination of the programme is that at least half of the Master's degree programme is passed in components provided by Utrecht University.
2. Components passed elsewhere during the degree programme can only be incorporated in the student's examinations programme with prior permission from the Board of Examiners.
3. Exemption can be granted for components passed at an institute of higher education prior to the start of the Master's degree programme only on the basis of Art. 5.14.
4. Contrary to Art. 3.9.3, components that have been passed in a Master's degree programme at Utrecht University prior to the start of the Master's degree programme may be counted towards the student's examinations programme with the classification awarded.

art. 3.11 – actual teaching structure

1. All teaching is scheduled according to the university academic calendar (annual schedule with four course periods) and the university timeslot model (schedule with fixed times per week for courses)¹.
2. The basic assumption is that students in a full-time program study 35 to 40 hours per week. The study consists of teaching hours and self-study.
3. In the University Course Catalogue and/or course guides and/or in the digital learning environment (Blackboard) each course indicates:
 - a. the learning objectives;
 - b. the timeslots;
 - c. instructional formats;
 - d. type of tests
4. The education director ensures the timely publication of teaching schedules and the dates of tests and repair/supplementary tests of courses. Students can view the schedules of the teaching, tests and supplementary tests via MyTimetable.

SECTION 4 – COURSES

art. 4.1 – course

All courses that are part of the degree programmes have been included in the prospectuses for the programmes and can be found at the [student site](#).

art. 4.2 – course admission requirements

See degree programme-specific component of the degree programme concerned.

art. 4.3 – registration for courses

1. Participation in a course is possible only if the student has registered for it before the deadline specified by the Board of Studies. Registration rules and closing dates will be published through the [student site](#).
2. All the courses that are listed in the University Course Catalogue will take place.
3. If fewer than 15 students register for a course, the course coordinator may decide, in consultation with the Director of Education, to offer the course in a different instructional format and/or assessment.
4. A student may register for a maximum of two courses of 7,5 EC or three courses of 5 EC per period.
5. An extra course must always be requested at the degree programme office. This extra course may only be chosen from the range of courses offered within a student's own degree programme; requests may be made only during the regular registration period.
6. If the student fails to make adequate progress on the course and/or there is insufficient capacity for a course, the Director of Education may exclude the student from registration for a third course within a single course period.

¹ For full-time or time-intensive components such as fieldwork and excursions, scheduling will span multiple or all timeslots

7. Subject to notification to the contrary, the student who has registered correctly and in time for a course will have a confirmed place on the course no later than 15 working days before the start of the course.
8. During the late registration days, a student may only register for the courses for which capacity is still available.

art. 4.4 – attendance and effort requirements

1. Students are expected to participate actively in the courses they registered for.
2. Besides the general requirement for the student to participate actively in the course the additional effort requirements for each component, such as attendance and test requirements, are listed in the University Course Catalogue and laid down in the course guide.
3. Students may be granted exemption from attendance for reasons demonstrably beyond their control (for instance as a result of illness or family circumstances), at the discretion of the course coordinator. Students must notify the study programme's secretariat of their absence in advance. The course coordinator may request the student to provide written evidence.
4. In the event of qualitatively or quantitatively inadequate participation, the course coordinator may exclude the student from further participation in the course or part of it.
5. Effort requirements (such as holding a presentation or writing a paper) can never expire. If students fail to meet an effort requirement in time for reasons beyond their control, they must report to the course coordinator immediately after the situation has arisen and, if instructed by the course coordinator, provide evidence of the exceptional circumstances (see also art. 5.6.1).
6. Students who wish to apply for special arrangements with regard to effort requirements as a result of chronic illness, disability or Outstanding Student Athlete status, may submit a request (see also Art. 7.3).

art. 4.5 – participate in courses; order of priority

1. If a course has a limited capacity, the University Course Catalogue and / or prospectus indicates how many students can register for the course.
2. Participation is only possible if the student is registered, students have priority on courses that belong to the compulsory and compulsory electives part of their study programme.
3. Apart from the general priority rule formulated in paragraph 2, admission to courses with a limited capacity will be based on the following placement rules:
 - a. students who are repeating a course because they did not successfully complete the course due to circumstances demonstrably beyond their control;
 - b. students for whom the course is compulsory or a compulsory elective;
 - c. exchange students accepted by the faculty who have registered in time under approval;
 - d. remaining students.
4. In the case of electives with a limited capacity, lots will be drawn. Students of the faculty (including accepted GEO exchange students) will be given priority over external students.
5. A student is expected to be aware of all information that is sent to the student's university email address, or that is published on the student site of the study programme and in the electronic learning environment. Information distributed in this manner is assumed to be known.

art. 4.6 – complete courses for international students before winter break

International exchange students have the opportunity to complete courses, selected by the Director of Education in course period 2, before the winter break.

art. 4.7 – evaluation of the quality of education

See degree programme-specific component of the degree programme concerned.

SECTION 5 – TESTING

art. 5.1 – general

1. During the course, the student will be tested for academic schooling and on the extent to which the student has sufficiently achieved the learning objectives set. The testing of the student will be concluded at the end of the course.

2. The University Course Catalogue and/or course guide describe the effort requirements the student must meet to pass the course, as well as the criteria on which the student is assessed. In the event of a difference of opinion, the course guide will be followed.
3. The course coordinator can indicate in the course guide for at most one test component that obtaining a sufficient grade of at least 5.50 is a condition for awarding a sufficient final grade. Only in special cases and with the approval of the Director of Education, this condition can be linked to more than one test component.
4. Subject to what is stated in article 5.5. and 5.6 each test component that is part of the final assessment of a course is taken and assessed once.
5. If a student repeats a course, the last classification gained will count.
6. Should a student pass a course, but still wishes to repeat the course, the complete course must be repeated.
7. The Regulations of the Board of Examiners describe the testing process (see: [student site](#)).

art. 5.2 – Board of Examiners

1. The Dean will establish a Board of Examiners for each degree programme or group of degree programmes and will ensure that the Board of Examiners can operate independently and professionally.
2. The Dean will appoint the chair and the members of the Board of Examiners for a period of three years on the basis of their expertise in the field of the degree programme(s) in question or the field of testing, in which:
 - at least one member comes from outside the degree programme or group of degree programmes concerned, and
 - at least one member is a lecturer on the degree programme or group of degree programmes concerned.

Re-appointment is possible. Before making this appointment, the Dean will consult the members of the Board of Examiners concerned.

3. Persons holding management positions that include financial responsibilities or who are wholly or partially responsible for Master's degree programmes are not eligible for appointment to the Board of Examiners or as chair of the Board of Examiners. These persons will in any event include the Dean, the Vice Dean, directors/heads/managers of a department, members of a department's management/governing team, members or chairs of the Board of Studies of the Graduate or Undergraduate School and the Director of Education.
4. Membership of the Board of Examiners will end on completion of the term of appointment. The chair and members of the Board may also be dismissed by the Dean at their own request. The chair and members of the Board will be dismissed by the Dean if they no longer meet the requirements of paragraphs 2 or 3 of this article. The Dean may also dismiss a chair or members found to be performing their statutory duties unsatisfactorily.
5. The Dean will announce the composition of the Board(s) of Examiners to students and lecturers.

art. 5.3 – assessment of traineeship or research assignment and thesis

1. A traineeship or research assignment will be assessed by the supervisor and examiner from Utrecht University as well as by one or more other internal and/or external experts.
2. Master's theses will be assessed by at least two examiners.

art. 5.4 – grades

1. Grades will be awarded on a scale of 1 to 10. The final assessment of a course is either pass or fail, expressed in numbers: 6 or higher and 5 or lower respectively.
2. The final course grade will be rounded to one decimal place. A partial course grade will never be rounded.
3. The final course grade of 5 will not have any decimal places. An average grade of 4.95 to 5.49 is a fail (5); an average grade of 5.50 to 5.99 is a pass (6).
4. The course guide sets out the way in which the final course grade is calculated.
5. Alphanumeric results are awarded in the following cases:
 - a student who is registered for a course and has not participated in one of the test modules will be given an NV (*Niet Verschenen* – No Show). If non-participation is for reasons beyond the student's control the student will be given an ND (*Niet Deelgenomen*– Not Participated);

- a student who has not participated in all the test modules will be given an NVD (*Niet VolDaan – Incomplete*);
- a student who failed to meet the condition of a sufficient minimum grade of 5,50 for a test component will be given an NVD (*Niet VolDaan – Incomplete*);
- if the student has completed a module, but has not received a grade for it, he may be given a V (*Voldoende – Satisfactory*) as the result;
- if the student has not completed a module but does not receive a numeric result, the student can be given an ONV (*ONVoldoende - Unsatisfactory*) as the result;
- a student who has been granted exemption by the Board of Examiners will be given a VR (*VRijstelling – Exemption*);

art. 5.5– repeat exams: supplementary tests

1. If the student does not receive a pass grade but does receive a final grade of at least 4.00 before rounding, the student will be given a once-only opportunity to take a supplementary test.
2. If the student passes the individual supplementary test, a final grade of 6.00 for the entire course will be recorded in the student progress administration system. Partial course grades that the student has achieved will not be taken into account in establishing the final grade of the supplementary test.
3. If the student does not pass the supplementary test, the initial final grade will be entered into the student progress administration system, thus rendering all partial course grades no longer valid.
4. If the student cannot be awarded a sufficient final average grade of 5.50 or higher because the student has failed to pass one test component with the condition of a sufficient grade, the student will be given one opportunity to take a supplementary partial test. The content of this partial test serves to replace the test component for which the mandatory minimum grade of 5,50 or higher is not achieved.
5. If a supplementary partial test is adequately repaired, the grade 5.50 is assigned to the test component and the final average grade will be recalculated according to the conditions specified in the course guide.
6. If the student does not pass the supplementary partial test, the final grade NVD will be entered into the student progress administration system, thus rendering all partial course grades no longer valid.
7. The student will not qualify for a supplementary test if the student has not met all the effort requirements of the course.
8. The student will not qualify for a supplementary partial test if the student has been awarded a pass.
9. The lecturer will determine the form and content of the supplementary (partial) test.

art. 5.6– force majeure: replacement tests

1. Students who miss a test or part of a test owing to circumstances demonstrably beyond their control will be given only one opportunity to sit a replacement test. Only students reporting these circumstances beyond their control immediately after their occurrence to the course coordinator will be eligible to sit a replacement test (see also art. 4.4.).
2. The lecturer will determine the form and content of the replacement test.
3. If the student is not present at the replacement test, or fails to meet the terms of the replacement test in good time, the student will not be offered another opportunity.

art. 5.7 – type of test

1. Testing as part of a course will take place as stated in the course guide.
2. Upon request, the Board of Examiners may allow a test to be administered in a manner which departs from the provisions of the first paragraph.

art. 5.8 – oral tests

1. Only one person at a time may be tested orally, unless the Board of Examiners decides otherwise.
2. An oral test will be administered as far as possible by two examiners, for a maximum of 60 minutes.

art. 5.9 – provision for testing in special cases

1. If not providing for an individual testing possibility would result in a ‘special case of manifest unfairness’, the Board of Examiners may decide to grant an individual testing possibility.
2. Requests for a special possibility to sit a test must be submitted to the Board of Examiners as soon as possible, together with supporting documentary evidence.

art. 5.10 – time limit for grading tests

1. Within 24 hours of administering an oral test the examiner will determine the grade and provide the student with a written statement of the grade awarded.
2. The examiner will grade a written or differently administered test or partial test within 10 working days of the test date, and will make this grade known.
3. If the mark is not available within this period time for reasons of force majeure, the examiner must communicate this to the student, indicating when the mark will be determined. Force majeure may only be established in consultation with the Director of Education.
4. If there is a third examiner, a new assessment period of 10 working days will commence, immediately following the first period of 10 working days. It is not possible to commence a new period following this second period.
5. Time frames for assessment do not apply during academic vacation periods.
6. The written statement of the grade awarded must inform the student of the right of inspection referred to in Art. 5.12 and of the possibility to appeal to the Examination Appeals Board.

art. 5.11 – period of validity

1. The term of validity of courses passed is eight years between test date and exam date.
2. Notwithstanding this, in case of special circumstances the Board of Examiners may, if the student requests, determine an extended validity period for a course, or impose a supplementary or replacement test.
3. Partial tests and assignments passed in a course that was not successfully completed will expire at the end of the academic year in which they were passed. Partial tests and assignments expire at the end of the course period in which they were passed, if the course concerned is taught more than once per academic year.

art. 5.12 – right of inspection

1. Within 20 working days after the announcement of the result of a written or digital test, the student is allowed to inspect the student's graded work upon request. A copy of that work will be supplied to the student on request.
2. During the period referred to in the first paragraph, the student may inspect the questions and assignments of the test concerned, as well as the standards on which the grade was based.

art. 5.13 – retention of tests

1. The assignments, answers and the work assessed in the written tests will be kept in paper or electronic form for a period of two years following the assessment.
2. The thesis and its assessment will be kept in paper or electronic form for a period of seven years following the assessment.

art. 5.14 – exemption

At the student's request, the Board of Examiners may, after consulting the examiner in question, grant exemption from a programme component if the student:

- a. has already either completed a university or higher vocational programme component which is equivalent in content and level; or
- b. has demonstrated, through work or professional experience, sufficient knowledge and skills in relation to that component.

art. 5.15 – fraud and plagiarism

1. Fraud and plagiarism are defined as an action or omission on the part of students which produces an incorrect representation of their own performance as regards their knowledge, skills and understanding, which may result in the examiner no longer being able to assess the knowledge or ability of the students in a proper and fair manner.

Fraud includes:

- cheating during tests. The person offering the opportunity to cheat is an accessory to fraud;
- share answers with others while taking a test;

- seeking the help of third parties during a test;
- being in possession of (i.e. having/carrying) tools and resources during tests, such as pre-programmed calculators, mobile phones, smartwatch, smartglasses, books, course readers, notes, etc., unless consultation is explicitly permitted;
- having others carry out all or part of an assignment and passing this off as own work;
- The course coordinator specifies in the course guide whether and to what extent the use of software such as generative artificial intelligence is allowed in a course or for an assignment. Under no circumstances are students allowed to use software such as generative artificial intelligence to generate (part of) an assignment and submit this as their own work.
- gaining access to questions or answers of a test prior to the date or time that the test takes place;
- perform (or try to perform) technical changes that undermine the online testing system;
- fabricating survey or interview answers or research data;

Plagiarism is defined as including data or sections of text from others/the student's own work in a thesis or other paper without quoting the source. Plagiarism includes the following:

- cutting and pasting text from digital sources such as encyclopaedias and digital publications without using quotation marks and referring to the source;
 - cutting and pasting text from the internet without using quotation marks and referring to the source;
 - using excerpts from printed material such as books, magazines, other publications and encyclopaedias without using quotation marks and referring to the source;
 - using a translation of the abovementioned texts without using quotation marks and referring to the source;
 - paraphrasing of the abovementioned texts without giving a (clear) reference: paraphrasing must be marked as such (by explicitly linking the text with the original author, either in text or a footnote), whereby the impression is not created that the ideas expressed are those of the student;
 - using visual, audio or test material from others without referring to the source and presenting this as own work;
 - resubmission of the student's own earlier work without source references, and allowing this to pass for work originally produced for the purpose of the course, unless this is expressly permitted in the course or by the lecturer;
 - using the work of other students and passing this off as own work. If this happens with the permission of the other student, the latter is also guilty of plagiarism;
 - in the event that, in a joint paper, one of the authors commits plagiarism, the other authors are also guilty of plagiarism, if they could or should have known that the other was committing plagiarism;
 - submitting papers obtained from a commercial institution (such as an internet site offering excerpts or papers) or having such written by someone else, whether or not in return for payment.
2. a. In all cases in which fraud or plagiarism is found or suspected, the examiner will inform the student and the Board of Examiners of this in writing.
b. The Board of Examiners will give the student the opportunity:
 - to respond to that in writing;
 - to be heard.
 3. The Board of Examiners will determine whether fraud or plagiarism has occurred and will inform the student of its decision in writing of any sanctions in accordance with the stipulations of the fourth paragraph, stating the possibility of appeal to the Examination Appeals Board.
 4. The Board of Examiners is authorized to impose sanctions. In doing so, the Board of Examiners shall ensure that the sanction is proportionate: the consequences of the sanction shall be in proportion to the degree and seriousness of the fraud or plagiarism committed.
 5. One or more of the following sanctions may be imposed, depending on the nature and extent of the fraud or plagiarism committed, and the circumstances in which the fraud or plagiarism was committed, as well as the student's study phase:
 - invalidation of the paper or test submitted;
 - reprimand, a note of which will be made in OSIRIS.
 - if applicable: exclusion from participation in the remaining tests of that course;
 - no longer being eligible for a positive degree classification (cum laude) as referred to in article 6.2;
 - exclusion from participation in tests belonging to the course concerned for the current academic year, or for a maximum period of 12 months;

- complete exclusion from participation in all tests for a maximum period of 12 months.
6. In the case of extremely serious and/or repeated fraud or plagiarism, the Board of Examiners may recommend that the Executive Board permanently terminate the concerned student's registration for the programme.
 7. If the Board of Examiners determines that there has been widespread or organised fraud, on a scale which would affect the test results in their entirety, the Board of Examiners will decide without delay that the test concerned is invalid and that all the participants must resit the whole test at short notice. The Board of Examiners will set the date on which the test must be retaken. This date will be no later than ten working days after the fraud was established, so that the participants can still benefit from their preparatory work for the test.

art. 5.16 – control of plagiarism

1. For the purpose of controlling plagiarism handing in an electronic version of written assignments by the student (such as papers, theses) can be imposed as a compulsory condition by the examiner of the relevant course, whether or not they are using a designated plagiarism detection system. If the student does not submit an electronic version of the assignment in time, the assessor may decide not to assess the assignment.
2. In all cases, submitting an electronic version of the final thesis is mandatory for students.
3. By submitting a written assignment, the student gives permission in the broadest sense of the word for the control of plagiarism via a plagiarism detection system as well as for recording the written assignment in databases, to the extent necessary, for future plagiarism checks.
4. In the event that a particular course coordinator decides to disclose documents, students reserve the right not to disclose their written assignment other than for the purpose of plagiarism as referred to in paragraphs 1 and 2 of this article.

art. 5.17 – right of appeal

The student has a right to appeal decisions taken by the Board of Examiners or by examiners. The appeal must be made in writing, and explaining the basis for the appeal, to the Examination Appeals Board within six weeks of taking the test or examination, or of the decision being made, pursuant to Section 7.61 of the Higher Education Research Act 1992.

SECTION 6 – EXAMINATION

art. 6.1 – examination

1. As soon as a student has fulfilled the requirements of the examinations programme, the Board of Examiners will determine the result of the examination and award a certificate, as described in art. 6.4.
2. Prior to determining the result of the examination, the Board of Examiners may conduct its own examination of the student's knowledge of one or more components or aspects of the degree programme. The Board of Examiners will only conduct such an investigation if it establishes that there are certain facts or circumstances that leads it to the conclusion that the Board of Examiners cannot vouch for the student having obtained the exit qualifications for the course (as referred to in art. 3.1 of the Education and Examination Regulations).
3. Assessment of the examinations file constitutes part of the final examination. The date of examination will be the last working day of the month in which the Board of Examiners has determined that the student has fulfilled all the requirements of the examinations programme. The student must be registered for the degree programme on the examination date.
4. Conditions to pass the examination are:
 - all components are passed;
 - the composition of the course package completed meets the level requirements set.
5. A further condition for passing the examination and receiving the certificate is that the student was registered for the degree programme during the period in which the tests and the final examination were taken. If the student does not fulfil this condition, the Executive Board may issue a statement of no objection in relation to the passing of the examination and the issue of the certificate, after the student has paid the tuition fees and administration charges owing for the 'missing' periods.
6. A student who has passed the examination and is entitled to a certificate may request the Board of Examiners to not yet grant the certificate and to postpone the examination date referred to in paragraph

3. This request must be submitted within 10 working days after the student has been informed of the result of the examination. The student will indicate in this request a preferred examination date.
7. The Board of Examiners will grant the request in any case if the student:
- is to fulfil a management position for which Utrecht University has provided an administrative grant
 - is to do a traineeship or take a component of a programme abroad.
- Postponement of the examination date is possible only once and for the duration of one academic year at the most. Postponement may only be granted for the duration of thirteen months for students who want to make use of tuition fee-board activities.

art. 6.2 – cum laude classification

- If a student has demonstrated outstanding academic achievement in the student's Master's degree programme, the degree will be awarded cum laude; this classification will be noted on the degree certificate.
- The cum laude classification will be awarded to the Master's examination if each of the following conditions have been met:
 - the weighted average of the grades achieved for the Master's programme components is at least 8.00 before rounding.
 - the student has received a minimum grade of 8.00 for the Master's thesis.
 - the student has been granted no more than 7.5 credits in exemptions that do not count towards the examination programme (1-year programmes) or no more than 15 credits (2-year programmes).
 - No decision has been reached by the Board of Examiners regarding commitment of fraud/plagiarism that would otherwise no longer qualify for a positive classification (cum laude).
 - the Master's examination has been passed within one and a half years (one-year degree programmes) or three years (two-year degree programme).
- The Board of Examiners may decide to award the cum laude classification even if not all the requirements referred to in paragraph 2 are met. Such a decision must be unanimous.
- Classifications other than cum laude will not be noted on the degree certificate.

art. 6.3 – degree

- The Master of Science degree will be awarded to the student who passes the examination.
- The degree awarded will be noted on the examination certificate.

art. 6.4 – degree certificate and International Diploma Supplement (IDS)

- The Board of Examiners will award a certificate as proof that the examination was passed.
- The Board of Examiners will add the International Diploma Supplement in the English language to this certificate, which provides (international) insight into the nature and contents of the completed degree programme.

art. 6.5 – grading tables

- The International Diploma Supplement gives the student's cumulative average mark and an ECTS Grading Table.
- The cumulative average mark shows the student's academic performance on a scale of 1 to 10. It is calculated based on the final results for the courses the student has successfully completed within the degree programme. Courses that are not assessed on a numerical basis are not included in the calculation. The cumulative average mark is weighted based on the number of credits for each course.
- The ECTS Grading Table gives a clear picture of Utrecht University's marking culture for educational institutions and employers outside the Netherlands. Based on the Grading Table, they can convert the results into their own marking system. The ECTS Grading Table is an institution-wide table for all Master's Degree programmes. This table uses a ten-point scale where only the marks from 6 to 10 are shown, as only passing marks are included in the Grading Table. The marks are expressed only as whole or half points. The percentage given with each mark indicates how frequently each mark is awarded. The ECTS Grading Table is calculated on the basis of:

1. all final passing marks in courses undertaken towards the degree, excluding alphanumerical results;
2. not weighted according to study load;
3. in the three most recent academic years;
4. of students who were registered for a Master's Degree programme at Utrecht University.

SECTION 7 – STUDENT COUNSELLING

art. 7.1 – student information system

1. The Faculty must record the individual study results of the students and make them available through Osiris-student.
2. Certified student progress files may be obtained from Student Affairs Geosciences.

art. 7.2 – academic advice and support

1. The Faculty is responsible for providing an introductory programme and student counselling to students registered for the degree programmes.
2. Student counselling encompasses:
 - encouraging students to feel part of the community;
 - supervising programme choices;
 - assisting a student to familiarise himself with the job market.
 - an introductory programme in the first week of the first semester of the first year of study
 - referring and assisting students who encounter difficulties during their studies.

art. 7.3 – disability and chronic illness

Students with special needs are afforded the opportunity to take classes and sit tests in the manner agreed in their Education provision. Requests for a provision are submitted to the student adviser via OSIRIS-student.

SECTION 8 – TRANSITIONAL AND FINAL PROVISIONS

art. 8.1 – safety net arrangements

In those cases not provided for in these regulations, or not provided for sufficiently clearly, the decision will be made:

- a. by the Board of Examiners if based on Articles 7.3j (permission for flexible study programme), 7.11 (award and postponement of degree certificate) and 7.12b (statutory powers of the Board of Examiners) of the Act or on the basis of Articles 3.6 to 3.9 (composition of the optional course profile, optional courses), 5.5 to 5.11 (decisions on tests), 5.14-5.16 (exemption, fraud and plagiarism) and 6.1-6.2 (examination and cum laude) of these Education and Examination Regulations this falls within the competence of the Board of Examiners;
- b. in all other cases by the dean or an officer appointed for this purpose on behalf of the dean, after the Board of Examiners has expressed its view.

art. 8.2 – hardship clause

Following the rules laid down in these Education and Examination Regulations, the Board of Examiners will decide, unless this would have manifestly unreasonable consequences for the student that due to special circumstances are disproportionate to the purposes to be served by the rule.

art. 8.3 – amendments

1. Amendments to these Regulations will be laid down by the Dean after having heard the advice of the Education Committee and after consultation with the Faculty Council and the Education committees, in separate resolutions.

2. An amendment to these Regulations is not to be applied to the current academic year unless it is reasonable to assume that it will not harm the interests of the students.
3. Furthermore, an amendment may not have an adverse effect for students on any other decision the Board of Examiners has taken pursuant to these Regulations with respect to a student.

art. 8.4 – publication

The Dean will publish these Regulations, as well as each amendment, on the internet.

art. 8.5– effective date

These Regulations take effect on 1 September 2024.

Annex 1: Language policy

The Geosciences Master’s programmes are taught in English for several reasons. Firstly, English is the language of choice given the international character and orientation of the content of the programmes. Addressing issues such as planning challenges, climate mitigation, and earth structures is inherently international. A diverse and international classroom increases the ability to study these topics from multiple perspectives, which is an important part of the learning experience. Teaching in English makes it possible for students from different countries and backgrounds to communicate and collaborate effectively.

English is widely accepted as the lingua franca in international research, and many of our researchers come from countries outside the Netherlands. It is important that students can benefit from their expertise, and teaching in English facilitates this exchange.

Thirdly, the programmes prepare students for a career, either inside or outside of academia, that will at the very least have an international context. Acquiring skills in academic English is therefore an important part of the programmes. This enables students to compete effectively in the (international) job market, and to communicate their research findings effectively to a global audience.

3.3 Programme specific part of the EER 2024-2025, Graduate School of Geosciences: Master's degree programme in Energy Science

The programme of the starting year of the student is the leading programme. If the programme is adjusted, the transitional arrangements (conversion of former courses) will be published in the new Education and Examination Regulations.

The Master's degree programme *Energy Science* offers the programme *Energy Science*.

Art. 2.1 – Admission requirements

1. The following conditions for admission apply:

Admission to the **Energy Science** programme is granted to students with a Dutch or foreign diploma confirming that they have acquired the knowledge, insight and skills at the university Bachelor's level. Furthermore, students need to prove that they have gained the following specific knowledge, insight and skills:

- a) knowledge of and insights in the field of natural sciences at the advanced level of the major *Global Sustainability Science (GSS)*, *Science and Innovation Management (NW&I)*, *Physics* or *Chemistry* at Utrecht University (or equivalent to that level)
 - b) knowledge of and insights in *Thermodynamics*, *Energy Analysis* and *Mathematics*
 - c) academic and quantitative research skills at the advanced level of the major *Global Sustainability Science (GSS)*, *Science and Innovation Management (NW&I)*, *Physics* or *Chemistry* at Utrecht University (or equivalent to that level)
2. Students will be selected based on objective standards regarding:
- a) their previous academic performance in a relevant subject area
 - b) relevant skills
 - c) their command of the language or languages used in the programme
 - d) the following additional selection criteria with proven relevance for the opinion on the suitability of the candidate:
 - motivation
 - average grade

This information is used to consider whether the student concerned will be able to complete the Master's Programme successfully within the set time period.

The admission requirements have been formulated clearly and transparently so that candidates know in advance what requirements must be met in order to qualify for selection.

Art. 3.1 – Aim of the degree programme

1. The degree programme aims to:
 - provide students with specialised knowledge, skills and understanding in the field of *Energy Science* so that they can achieve the final qualifications as mentioned in Article 3.1.2
 - prepare students for professional employment in one or more disciplines of *Energy Science*
 - prepare students for training as researchers in the field of *Energy Science*
2. Graduates in *Energy Science*:
 1. have advanced demonstratable knowledge and understanding of energy technologies and energy systems, including their dynamics and challenges in the context of the energy transition and sustainable development.
 2. are able to conduct research on energy technologies and energy system dynamics and challenges in an original and independent way.
 3. have the ability to apply knowledge, research methods, and problem-solving abilities in broader and novel contexts related to energy systems and the energy transition.
 4. have insight into the uncertainties and complex interactions between the energy systems and society and are able to reflect critically upon their role to influence the energy transition.
 5. are able to apply knowledge and understanding in such a way that they demonstrate an academic and professional approach to their work.

6. are able to communicate conclusions, as well as the knowledge, reasons and considerations underlying these conclusions, to an audience of specialists and non-specialists alike.
7. are able to study and work independently and explore new areas of interest in energy science or related fields.

Art. 3.6 – Components of the Master’s programme

1. Appendices 1, 2 and 3 describe the required courses of the programme, including the course load per course.
2. Students may choose optional courses. The course load of the optional courses are listed in Appendices 1, 2 and 3. The rules for choosing optional courses are listed in Appendix 4.
3. The requirements for the Annotation Complex Systems can be found in Appendix 6.
4. The prospectus gives a detailed description of the content and type of courses in the programme, including prior knowledge that is required to participate successfully.

Art. 4.2 – Course admission requirements

The Executive Board decides the order in which the required components of a Master’s degree programme must be completed. This has been listed in Appendix 5.

Art. 4.7 –Evaluation of the quality of education

1. The Director of Education monitors the quality of education, and ensures that both the courses and the curriculum are evaluated. The Director takes into consideration the advice and suggestions given by the Education Committee regarding improving and ensuring the quality of the programme.
2. Students are informed of the outcomes of the course and curriculum evaluations.

APPENDICES

Appendix 1: Exam programme Energy Science, cohort 2024

1. Compulsory components (60 EC)

-	Challenges of Energy Transitions	7.5 EC
-	Energy Conversion Technologies	7.5 EC
-	Data Analytics for Sustainability	7.5 EC
-	Advanced Energy Analysis	7.5 EC
-	Energy Systems Modelling	7.5 EC
-	Energy Systems Integration	7.5 EC
-	Consultancy Project ES	15 EC
-	Master’s thesis	45 EC

2. Optional components (15 EC)

Students should select optional courses for a total of 15 EC.

Appendix 2: Exam programme Energy Science, track Systems Analysis, cohort 2023

1. Compulsory components (52.5 EC)

-	Energy in the Context of Sustainability	7.5 EC
-	Energy conversion Technologies I	7.5 EC
-	Energy conversion Technologies II	7.5 EC
-	Advanced Energy Analysis	7.5 EC
-	Energy Systems Modelling	7.5 EC
-	Consultancy Project ES	15 EC

2. Thesis components (choose 30 EC or 45 EC)

- Master's thesis 30 EC
- Master's thesis 45 EC

3. Optional components (22.5 EC or 37.5 EC)

Students should select optional courses for a total of 22.5 EC or 37.5 EC.

4. Conversion of former courses

Old course 2023/2024	New course 2024/2025
Energy in the Context of Sustainability (GEO4-2514)	Challenges of Energy Transitions (GEO4-2525)
Students that have not passed Energy Conversion Technologies I (GEO4-2502) <i>or</i> Energy Conversion Technologies II (GEO4-2503)	Energy Conversion Technologies (GEO4-2526)
Students that have not passed Energy Conversion Technologies I (GEO4-2502) <i>and</i> Energy Conversion Technologies II (GEO4-2503)	Energy Conversion Technologies (GEO4-2526) <i>and</i> Energy Systems Integration (GEO4-2527)
Photovoltaic Solar Energy Physics (GEO4-2513)	Photovoltaic Solar Energy (BETA-MPHSE)

Appendix 3: Exam programme Energy Science, track Natural Science, cohort 2023

1. Compulsory components (97.5 EC)

- Energy in the Context of Sustainability 7.5 EC
- Energy Conversion Technologies I 7.5 EC
- Energy Conversion Technologies II 7.5 EC
- Advanced Energy Analysis 7.5 EC
- Energy Systems Modelling 7.5 EC
- Master's thesis 30 EC
- Natural Science Research Project 30 EC

2. Optional components (22.5 EC)

Students should select natural science courses for a total of 15 EC.

Students should select other optional courses for a total of 7.5 EC.

3. Conversion of former courses

Old course 2023/2024	New course 2024/2025
Energy in the Context of Sustainability (GEO4-2514)	Challenges of Energy Transitions (GEO4-2525)
Students that have not passed Energy Conversion Technologies I (GEO4-2502) <i>or</i> Energy Conversion Technologies II (GEO4-2503)	Energy Conversion Technologies (GEO4-2526)
Students that have not passed Energy Conversion Technologies I (GEO4-2502) <i>and</i> Energy Conversion Technologies II (GEO4-2503)	Energy Conversion Technologies (GEO4-2526) <i>and</i> Energy Systems Integration (GEO4-2527)
Photovoltaic Solar Energy Physics (GEO4-2513)	Photovoltaic Solar Energy (BETA-MPHSE)

Appendix 4: Rules for choosing elective courses

1. Students in the Master’s programme choose elective courses from another or their own Master’s programme. Courses that are obligatory in the exam programme cannot be used as elective courses.
2. Honours programmes for Master’s students (e.g. Young Innovators, GHIS, Leadership Programme) do not count towards the electives in the programme.
3. Electives as mentioned in the student’s academic progress review in OSIRIS are pre-approved by the programme leader and by the Board of Examiners. Students can enroll for those courses via OSIRIS. It remains the student’s responsibility to make sure that the points mentioned under 6 d-f are met. If the course is from another department than Sustainable Development, it may be that other students have priority and that they are therefore placed on a waiting list.
4. It is possible to choose other courses than the pre-approved courses mentioned in OSIRIS. Any non-pre-approved elective courses must be subjected in advance to the programme leader and the Board of Examiners for approval. The programme leader will advise the Board in this matter.
5. The application for a non-pre-approved elective is done by a written request (application form) to the programme leader. Written information on the content, the level, and the study load of the course (preferably by means of a copy of the course’s description from the course catalogue) must be attached. The ‘Application Form Elective courses SD’ can be found in the Blackboard community Energy Science.
6. The programme leader tests the proposed elective course(s) on the following criteria:
 - a. It must be thematically linked to the Master’s programme;
 - b. It concerns a course at master level (M);
 - c. There is no overlap in content with courses still to be taken or already taken.
 The student is responsible for making sure that:
 - d. The course is available to students of the ES programme;
 - e. The student fulfills the entrance requirements of the course (if applicable). Actual participation is only possible if students satisfy the course’s entrance conditions; in case of doubt they should contact the course coordinator first;
 - f. The course is not taught in the same period and timeslot as another course the student has selected.
7. If the programme leader has declared that the elective course(s) meet the criteria under 6a-c (by signing the application form or approval via an email message), the student uploads the application form (signed or with the approval email attached) and the course information to the Board of Examiners via OSIRIS Case. The Board of Examiners takes the final decision on whether or not the elective is approved.
8. In the programme’s course schedule, room has been reserved for taking electives. However, the student is free to deviate from this planning, e.g. because they wish to take an interesting elective course in another period. If this causes delay in the study planning, it is the responsibility of the student! Students are therefore advised to take their electives in the reserved periods and timeslots, or use a part of the time planned for their internship and/or Master’s thesis.

Appendix 5: Entrance requirements 2024-25

Course	Entry requirements/recommended prerequisites
Sustainable Food Systems (GEO4-2005)	Letter of acceptance of a Master’s programme
Innovation and International Development (GEO4-2009)	Letter of acceptance MSc Sustainable Development or MSc Innovation Sciences or MSc Sustainable Business & Innovation or MSc Energy Science or MSc Water Science and Management.

Imagining the Future for Transformation (GEO4-2010)	Letter of acceptance of a Master's programme
Data Analytics for Sustainability (GEO4-2011)	Letter of acceptance MSc Sustainable Development or MSc Innovation Sciences or MSc Sustainable Business & Innovation or MSc Energy Science or MSc Water Science and Management. Recommended pre-requisites: knowledge of R and Python
Changemaking Journeys: Transformational leadership for societal impact' (GEO4-2013)	Letter of acceptance MSc Sustainable Development or MSc Innovation Sciences or MSc Sustainable Business & Innovation or MSc Energy Science or MSc Water Science and Management.
Advanced Energy analysis (GEO4-2508)	Letter of acceptance of a Master's programme. Recommended prerequisites: <ul style="list-style-type: none"> - Strong foundation of Energy Analysis and calculus - Knowledge of Energy Conversion Technologies
Master's thesis 30 EC (GEO4-2510)	<ul style="list-style-type: none"> - Only for cohort 2023 and earlier - Letter of acceptance MSc Energy Science - At least 45 EC passed within the programme Energy Science including one of two course packages: <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies I (GEO4-2502) • Energy Conversion Technologies II (GEO4-2503) • Energy Systems Modelling (GEO4-2515) <p>or</p> <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies (GEO4-2526) <p>And 1 out of 2 courses:</p> <ul style="list-style-type: none"> • Energy Systems Integration (GEO4-2527) • Energy Systems Modelling (GEO4-2515) <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Consultancy Project (GEO4-2519)
Energy Systems Modelling (GEO4-2515)	Letter of acceptance of a Master's programme Recommended prerequisites: <ul style="list-style-type: none"> - Energy Analysis (GEO3-2223) - Advanced Energy Analysis (GEO4-2508)
Tailor made course ES (GEO4-2517)	<ul style="list-style-type: none"> - Letter of acceptance MSc Energy Science - At least 45 EC passed within the programme - Students have to have a supervisor before writing the TMC proposal!
Natural Science Research Project (GEO4-2518)	<ul style="list-style-type: none"> - Obligatory for and only open to students in the Natural Science track, cohort 2023 and earlier - Letter of acceptance MSc Energy Science <p>Passed examinations of one of two course packages:</p> <ul style="list-style-type: none"> - Advanced Energy Analysis (GEO4-2508) - Energy Conversion Technologies I (GEO4-2502) - Energy Conversion Technologies II (GEO4-2503) <p>or</p> <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies (GEO4-2526) <p>And 1 out of 2 courses:</p> <ul style="list-style-type: none"> • Energy Systems Integration (GEO4-2527) • Energy Systems Modelling (GEO4-2515) <p>Recommended prerequisites:</p>

	<ul style="list-style-type: none"> - At least one natural science elective - Energy Systems Modelling (GEO4-2515)
Consultancy project (GEO4-2519)	<ul style="list-style-type: none"> - Letter of acceptance MSc Energy Science - Open to students in track Systems Analysis, cohort 2023 and earlier - Open to students in Energy Science, cohort 2024 and later <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Advanced Energy Analysis (GEO4-2508) - Energy Systems Modelling (GEO4-2515)
Internship Energy Science 22.5 EC (GEO4-2520)	<ul style="list-style-type: none"> - Only open to students in track Systems Analysis, cohort 2023 and earlier - Letter of acceptance MSc Energy Science - Passed examinations of one of two course packages: <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies I (GEO4-2502) • Energy Conversion Technologies II (GEO4-2503) • Energy Systems Modelling (GEO4-2515) <p>or</p> <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies (GEO4-2526) <p>And 1 out of 2 courses:</p> <ul style="list-style-type: none"> • Energy Systems Integration (GEO4-2527) • Energy Systems Modelling (GEO4-2515) <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Consultancy Project (GEO4-2519)
Bio-based Economy (GEO4-2521)	<ul style="list-style-type: none"> - Letter of acceptance MSc Energy Science or MSc Innovation Sciences or MSc Sustainable Development or MSc Sustainable Business & Innovation or MSc Water Science and Management or MSc Chemistry <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Advanced Energy Analysis (GEO4-2508) - Life Cycle Analysis (GEO3-2124; BSc course) - Sustainability Assessment and Management Tools (GEO4-2602) - Science and Technology for Sustainable Development (SK-BCHDO; BSc course)
Energy in the Built Environment (GEO4-2522)	<ul style="list-style-type: none"> - Letter of acceptance MSc Innovation Sciences or MSc Sustainable Development or MSc Sustainable Business & Innovation <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Basic principles of energy flows in the built environment, i.e. electricity, heat and gas networks. - Basic knowledge on power system planning & operation and electricity markets.
Master's thesis 45 EC (GEO4-2523)	<ul style="list-style-type: none"> - Only for cohort 2023 and earlier - Letter of acceptance MSc Energy Science - At least 45 EC passed within the programme Energy Science including one of two course packages: <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies I (GEO4-2502) • Energy Conversion Technologies II (GEO4-2503) • Energy Systems Modelling (GEO4-2515) <p>or</p> <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies (GEO4-2526)

	<p>And 1 out of 2 courses:</p> <ul style="list-style-type: none"> • Energy Systems Integration (GEO4-2527) • Energy Systems Modelling (GEO4-2515) <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Consultancy Project (GEO4-2519)
Master's thesis 45 EC (GEO4-2528)	<ul style="list-style-type: none"> - Only for cohort 2024 and later - Letter of acceptance MSc Energy Science - At least 45 EC passed within the programme Energy Science including: <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies (GEO4-2526) <p>And 1 out of 2 courses:</p> <ul style="list-style-type: none"> • Energy Systems Integration (GEO4-2527) • Energy Systems Modelling (GEO4-2515) <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> • Consultancy Project (GEO4-2519)
Internship Energy Science 15 EC (GEO4-2524)	<ul style="list-style-type: none"> - Only open to students in track Systems Analysis, cohort 2023 and earlier - Letter of acceptance MSc Energy Science - Passed examinations of one of two course packages: <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies I (GEO4-2502) • Energy Conversion Technologies II (GEO4-2503) • Energy Systems Modelling (GEO4-2515) <p>or</p> <ul style="list-style-type: none"> • Advanced Energy Analysis (GEO4-2508) • Energy Conversion Technologies (GEO4-2526) <p>And 1 out of 2 courses:</p> <ul style="list-style-type: none"> • Energy Systems Integration (GEO4-2527) • Energy Systems Modelling (GEO4-2515) <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Consultancy Project (GEO4-2519)
Challenges of Energy Transitions (GEO4-2525)	<ul style="list-style-type: none"> - Letter of acceptance MSc Energy Science
Energy Conversion Technologies (GEO4-2526)	<p>Letter of acceptance of a Master's programme</p> <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> - Strong foundation of thermodynamics, heat transfer and calculus
Energy System Integration (GEO4-2527)	<ul style="list-style-type: none"> - Letter of acceptance MSc Energy Science or MSc Innovation Sciences or MSc Sustainable Development or MSc Sustainable Business & Innovation or MSc Water Science and Management <p>Recommended prerequisites:</p> <ul style="list-style-type: none"> • Energy Conversion Technologies (GEO4-2526) • Advanced Energy Analysis (GEO4-2508)
Techniques of Futuring (GEO4-5501)	<p>Letter of acceptance of a Master's programme</p>

Appendix 6: Annotation Complex Systems

Description

The Master's profile Complex Systems is an interdisciplinary profile for students who are interested to broaden their knowledge and expertise within the field of Complex Systems. In this research field societal issues, such as a financial crisis, a sudden epidemic or climate change are studied from a quantitative modelling perspective.

Students will get an understanding of the various models used in the complexity field and the behaviour (i.e. transitions, predictability) of these models.

The aim of the Complex Systems Profile is for students to develop or improve their

- affinity for quantitative approaches in order to address societal issues,
- ability to build models that are amenable to quantitative approaches,
- familiarity with standard (quantitative) methods in the toolbox for analysing complex systems, and
- ability to work in interdisciplinary teams.

Learning outcomes

Upon completion of the Master's profile the student

- is able to recognise the complex systems aspects when confronted with a societal problem,
- is able to develop models of complex systems and/o has a good overview of model-building for complex systems,
- has a good overview of the methods in the complex systems toolbox, can apply them to models and extract quantitative results, and
- communicate/explain complex-systems models and methods to (interdisciplinary) teammates.

Programme

The Master's profile comprises 30 EC and consists of the following parts:

- Two electives (7.5 EC each) from the following courses (**one of these electives need to be from 1-3 below**, which are termed as **core courses** for Complex Systems):
 1. Introduction to Complex Systems (WISM484)
 2. Advanced Topics in Climate Physics (NS-MO411)
 3. Computational Aspects of Machine Learning (NS-EX426M)
 4. Mathematical Biology (WISL411)
 5. A Complex Systems labelled course listed under a master programme that is **different** from the one to which the student is admitted (see list below). **Note on this list:** some programmes may require one of their own primary elective courses, labelled as Complex Systems course to be taken; the student **cannot** count them as primary electives **as well as** Complex Systems master profile courses. More information can be found in the specific programme description section of the Education and Examination Regulations.
- A Research Project on a Complex Systems topic (15 EC, Osiris code GSNS- CSRP), for which focus should be on interdisciplinary aspects and at least two supervisors from two different departments/faculties must be involved.

The topic should not correspond to the topic of the master thesis, however if the master research project deals with a complex system subject – currently available only for Theoretical Physics, Experimental Physics and Climate Physics Master programmes at Utrecht University – it is permitted to combine the research project of the master's profile Complex Systems (15 EC) with the master thesis project. In case the master research project deals with a complex system subject, the complex systems aspects must be separately assessed and a supervisor from a different department or faculty other than the department related to the student's master programme needs to be involved in assessing the complex system aspects of the research project.

The topic must be approved by the coordinator of the profile as well as by the coordinator of the master programme to which the student is admitted.

The total number of EC of each master's programme will NOT be increased by completing the master profile Complex Systems. Students receive a certificate by completing the Master's profile Complex Systems.

List of courses labelled as a complex systems course:

Master's programme	Course	Osiris code
Artificial Intelligence	Evolutionary Computing	INFOEA
Climate Physics	Waves in Geophysical Fluids	NS-MO447M
Computing Science	Network Science	INFOMNWSC
Energy Science	Energy Systems Modelling	GEO4-2515
Experimental Physics	Modelling and Simulation	NS-TP432M
	Fundamentals of Biophysics	NS-TP464M
	AND	AND
	Advanced Methods in Biophysics†	NS-EX433M
Game and Media Technology	Process Mining	INFOMPROM
	Crowd Simulation	INFOMCRWS
Mathematical Sciences	Inverse Problems in Imaging*	WISL435
	Numerical Methods for Partial Differential Equations*	WISL602
Nanomaterials Science	Toy Models in Science and Technology	BETA-MTOYM
	Modelling and Simulation	NS-TP432M
Sustainable Development	Systems Thinking, Scenarios and Indicators	GEO4-2331
	Environmental Systems Analysis	GEO4-2303
	Integrated Assessment of Climate Change	GEO4-2340
Theoretical Physics	Modelling and Simulation	NS-TP432M
	Fundamentals of Biophysics	NS-TP464M
	AND	AND
	Stochastic Processes in Biophysics†	NS-TP465M
Multidisciplinary Economics	Algorithms in Finance	ECMAF

† These two courses can only be taken in combination with each other since individually they are 3.75 EC courses

* Registration via elo.mastermath.nl

Entry Requirements

- The student belongs to one of the participating master programmes
- Upon consultation with the coordinator for the profile, it is also possible for students from outside Utrecht University to participate in the profile, when their master programme has an affinity to complex systems

Participating Master's programmes

- Climate Physics
- Computing Science
- Energy Science
- Artificial Intelligence
- Experimental Physics
- Game and Media Technology
- Mathematical Sciences
- Nanomaterials Science
- Sociology and Social Research
- Sustainable Development
- Theoretical Physics
- Multidisciplinary Economics

Legacy issues

The following courses were labelled as Complex Systems courses in the past academic years (noted in parenthesis).

Master's programme	Course	Osiris code
Artificial Intelligence	Seminar Social Simulation (2018-19)	NFOMSOCS
Core courses	Algorithms in Finance (2018-19, 2019-20)	WISM410
	Complex Networks (2020-21)	WISL115
	Seminar Applications of Mathematics in Radiation Research (2018-19, 2019-20)	WISM409
	Understanding Complexity: Economy and the Planet (2018-19, 2019-20)	NS-MO450M
	Mathematical Neuroscience	WISL413
Computing Science	Evolutionary Algorithms (2018-19, 2019-20), Evolutionary Computing	INFOEA
	Data Mining (2020-21, 2021-22, 2022-23)	INFOMDM
	Pattern Recognition (2020-21, 2021-22, 2022-23)	INFOMPR
Experimental Physics	Biophysics	NS-EX430M
Game and Media Technology	Games and Agents (2017-18)	INFOMGMAG
Mathematical Sciences	Interacting particle systems: Theory and applications (2018-19)	WISL431
	Introduction to Numerical Bifurcation Analysis of ODEs and Maps (2019-20, 2021-22, 2023-24)	WISL606
	Inverse Problems in Imaging (2020-21)	WISL435
	Laboratory class for scientific computing (2018- 19)	WISL454

	Mathematical Biology (2017-18, 2019-20, 2021-22)	WISL411
	Mathematical Neuroscience (2020-21)	WISL413
	Nonlinear Waves (2017-18)	WISL409
	Numerical bifurcation analysis of large-scale systems (2018-19, 2020-21, 2021-22)	WISL425
Multidisciplinary Economics	Advanced behavioural and experimental finance (2018-19)	ECRMABEF
	The Triumph of the City	ECRMTCE
Sustainable Development	Sustainability Modelling and Indicators (2018-19, 2019-20)	GEO4-2331

3.4 Regulations of the Board of Examiners 2024-2025

Regulations of the Board of Examiners adopted by the Board of Examiners for the Undergraduate and Graduate School of Geosciences at Utrecht University, on 15 May 2024.

Valid from 1 September 2024.

Disclaimer: This translation is provided for information purposes only. Inevitably, differences may occur in translation, and if so, the Dutch version will prevail.

Preamble

The Board of Examiners of the Undergraduate School of Geosciences and the Graduate School of Geosciences consists of a central Board of Examiners and three executive panels.

The chairs of the executive panels, together with an external member, form the Board of Examiners of the Undergraduate School of Geosciences and the Graduate School of Geosciences.

The Board of Examiners acts as a framework-setting and supervisory body that:

- determines the examinations policy;
- establishes frameworks in the form of regulations and procedures;
- adopts these regulations of the Board of Examiners (which apply to everyone who is enrolled in this academic year and/or takes courses of the program in this academic year);
- monitors the quality of the decisions and the implementation of the examination policy by the executive panels.

The executive panels independently implement examinations policy, within the framework set by the Board of Examiners. Requests to the Board of Examiners are received centrally and are subsequently assigned to the executive chambers. The appendix specifies which executive panel processes requests.

As a subcommittee to the Central Board of Examiners, the Assessment Committee investigates the quality of assessment within the framework of the faculty assessment policy and is accountable to the Central Board of Examiners.

PARAGRAPH 1 – GENERAL STIPULATIONS

Art. 1.1 – scope of application

These regulations apply to the tests and examinations of the study programmes of the Graduate and Undergraduate School of Geosciences. These regulations do not apply to the PhD programmes.

The terms defined in the Education and Examination Regulations of these study programmes also apply to these regulations.

Art. 1.2 – Board of Examiners

1. The Dean appoints the chair and the members of the Board of Examiners (see EER art. 5.2.2)
 - a. the chair is in charge of managing the daily course of affairs of the Board of Examiners.
 - b. the chair appoints a vice chair, excluding the external member, to replace the chair in case of absence.
2. The Board of Examiners will take decisions by an ordinary majority of votes. If the votes are equal, the chair, or their replacement, has a casting vote.

3. The chair and all members of the Board of Examiners, excluding the external member, are authorized signatories.
4. The Board of Examiners takes a decision within six weeks of receipt of an application. During academic vacation and fieldwork periods this term can be exceeded.
5. The Board of Examiners is supported in its work by an official secretary. This official secretary is not a member of the Board of Examiners. The official secretary is responsible for:
 - preparing, convening and taking minutes of the meetings;
 - monitoring the implementation of decisions taken;
 - communicating decisions to students and other stakeholders;
 - preparing periodic reports;
 - archiving processed requests, objections and decisions taken.
6. The Board of Examiners can mandate the official secretary to communicate and sign decisions on behalf of the Board of Examiners. To this end, the Board of Examiners issues a written mandate to the official secretary, containing the frameworks and general instructions regarding the exercise of the mandated authority.
7. The Board of Examiners can mandate the official secretary to check on its behalf whether all units of study belonging to the examination programme of the degree programme have been successfully completed and the student has therefore passed the examination. To this end, the Board of Examiners issues a written mandate to the official secretary, containing the frameworks and general instructions regarding the exercise of the mandated authority.

Art. 1.3 – standards

In its decisions, the Board of Examiners will be guided by the following standards:

- a. the retention of quality criteria in an examination or test;
- b. efficiency requirements, expressed inter alia in efforts to:
 - limit as far as possible loss of time for students, who can thereby make rapid progress with their studies;
 - encourage students to terminate their studies as quickly as possible, if it is unlikely that they will pass an examination or test;
- c. protecting students from themselves in the event that they wish to take on an excessive study load;
- d. leniency towards students who, through no fault of their own, have experienced delays in the progress of their studies.

Art. 1.4 - examiners

1. Based on the “examiners profile” (Appendix 2), the Board of Examiners appoints members of the academic staff who are responsible for teaching a course as examiners. The Board of Examiners can appoint other members of the academic staff and experts from outside the degree programs as examiners in accordance with the criteria laid down in the examiners profile.
2. The Board of Examiners may withdraw the appointment as an examiner in the event that the examiner fails to comply with the applicable legislation or regulations or guidelines of the Board of Examiners, or if the competence of the examiner concerning the making, administering or marking of tests repeatedly proves to be of insufficient quality.
3. The Board of Examiners registers all examiners, so that it is known which persons are authorized to administer tests and to determine the results.

PARAGRAPH 2 – ORGANIZATION OF TESTS AND PROPER PROCEDURE

Art. 2.1 – times of tests

1. Written tests are to be administered at times set by the course examiner at least 14 days before the start of the term in question.
2. In setting the times of the tests any overlap of tests must be prevented as far as possible.
3. Changes to times set may be made only in cases of force majeure.
4. If possible, oral tests are to be administered by the examiner(s) in question at a time set after consulting with the student.
5. The times of written supplementary and replacement tests will be determined and announced at least two weeks in advance. At least five working days will pass between the announcement of the results and the supplementary test.

Art. 2.2 – registration for tests

When registered correctly for a course, students are also signed up for the course test(s).

Art. 2.3 – order during an examination or test

1. The examiner will ensure that an adequate number of invigilators are appointed for the written examinations. These invigilators will ensure that the test proceeds properly.
2. The students must identify themselves on request by or on behalf of the Board of Examiners by valid proof of the student's identity. Admission to the test will be denied if students are unable to identify themselves.
3. The student must follow instructions of the Board of Examiners, or the examiner or invigilator, which are given before, during and immediately after the test.
4. Should the student fail to follow one or more instructions as referred to in Art. 2.3.3, the student may be excluded by the Board of Examiners or examiner from further participation in the test in question. As a consequence of the exclusion, no result will be determined for that test. The Board of Examiners must give the student the opportunity to be heard on the matter before it takes a decision.
5. The duration of a test must be such that students reasonably have enough time to answer the questions.
6. Latecomers will be admitted to a test no more than 30 minutes after the start of the test. If a student is prevented by force majeure from being present within this time limit, the Board of Examiners, or examiner, will decide whether the student can still be admitted to the test. Latecomers may not claim extra time for the test.
7. Students may not leave the room where the test is being administered within 30 minutes of the start of the test.
8. After one or more participants have left the room, no latecomers will be admitted to the test.
9. Students must hand over their bags, coats and electronic devices to the invigilators at the start of the test.

PARAGRAPH 3 – ASSESSMENT OF TESTS, THESIS

Art. 3.1 – marking of test

1. The Board of Examiners will ensure that written tests are to be marked on the basis of predetermined, written standards, possibly adjusted on the basis of a correction.

2. The weighting of the interim results in reaching the end result is laid down in the course manual.
3. If more than one examiner is involved in the marking of a test, the course coordinator must ensure that all examiners mark it on the basis of the same standards.
4. The manner of marking must be such that the student can check how the result of the test was reached.
5. With only one examiner present a recording of an oral test is made. In case of more than one examiner present, one of the examiners makes notes listing the topics that are being addressed and whether the students masters the subject(s). Recordings or notes are kept by the examiner for three months and can be viewed or listened to by the student who took the oral test.
6. If, in case of assessing, several students contribute towards a single joint project, the following rules apply:
 - a. the guideline for the individual or collective marking of group work must be established beforehand by the lecturer and notified to the student;
 - b. the supervisor will regularly check that all students make a proportional contribution to the end product;
 - c. students may be marked individually on the basis of the work they have performed.
7. The last mark given will apply in assessing the result of a test/course.

Art. 3.2 – assessment of theses and final papers

1. The assessment of theses and final papers takes place on the basis of the assessment method with associated assessment criteria laid down in the course guide for the component.
2. The assessment is done by two assessors. Both assessors are designated as examiners, with at least one examiner being a member of the academic staff of Utrecht University¹ and in possession of a Basic Teaching Qualification (BKO). An internal guideline for appointing examiners can be found in appendix 3.
3. If the first and second examiners fail to reach agreement, the thesis coordinator will appoint a third assessor, who will issue a binding final assessment.
4. The assessors both use an assessment form to provide insight into the way in which the assessment was made.
5. The student receives one motivated final assessment on behalf of all assessors.
6. If several students contribute to a thesis or master's research, the following additional guidelines apply:
 - a. the Examination Board ensures that assessment criteria for the thesis are established and that these laid down in the study guide.
 - b. agreements about the division of tasks for the work to be performed by the students are laid down in writing by the responsible examiner(s) before the work commences;
 - c. students are assessed individually on the basis of the work they have performed.

Art. 3.3 – subsequent evaluation

1. As soon as possible after the result of an oral test is made known, if a student so requests or on the initiative of the examiner, a subsequent evaluation will take place between the examiner and the student, in which the examiner will give reasons for the decision.

¹ or has been appointed at one of the joint degree partner universities if it concerns GIMA program components

2. During a period of 30 days, starting on the day after the results of a written test were made known, the student may request an evaluation with the examiner. The evaluation will take place at a place and time determined by the examiner.

3. If a collective evaluation is organized, the student can submit a request as referred to in the second paragraph only if the student was present at the collective evaluation and the student substantiates their request, or if the student was prevented by force majeure from attending the collective evaluation.

4. The provisions of the preceding paragraph will apply by analogy if the examiner offers the student the opportunity to compare the answers with model answers.

Art. 3.4 – recording the final results

Final results of a course unit will be entered in Osiris following authorization by the examiner.

PARAGRAPH 4 – ASSURING THE QUALITY OF EXAMINATIONS

Art. 4.1 – assuring the quality of testing

The Board of Examiners will ensure that:

- a. a testing policy/testing plan is in place, and that this is implemented;
- b. tests are compiled in line with the learning objectives and final attainment levels for the course in question;
- c. uniform agreements are made on the way in which tests are compiled.

Art. 4.2 – determining the quality of testing

1. The Assessment Committee is tasked with providing analysis and advice concerning the quality of the tests. To this end, it will test the quality of individual tests on the basis of random samples – and following complaints, evaluation of results, pass rates, et cetera– in relation to the validity (do tests measure knowledge, skills and competences) and reliability (are tests consistent and accurate) and will inform the Board of Examiners of their findings.

2. The Board of Examiners may ask the Assessment Committee to provide information, undertake research and make proposals concerning the structure of the tests. The Assessment Committee is obliged to follow these instructions. The Assessment Committee is accountable to the Board of Examiners for carrying out these instructions.

Art. 4.3 – assuring the quality of examinations (final level of the graduates)

1. If it becomes apparent that the test has such serious quality shortcomings that it cannot be ascertained whether and to what extent students have achieved the learning objectives of the course, by virtue of its quality assurance role pursuant to Section 7.12b (1)(a) of the Higher Education and Research Act, the Board of Examiners may decide immediately that the examination concerned is invalid, and that all participants must repeat the entire examination as soon as possible. The Board of Examiners will set the date on which the examination will be repeated. This date will be no later than two weeks after establishing the quality shortcomings, so that the participants will still be able to benefit from their preparations for the examination.

2. Except in the event of fraud or plagiarism, as referred to in Art. 5.15 of the Education and Examination Regulations, the Board of Examiners may no longer declare a test invalid if the final test results have already been published.

Art. 4.3a – declaring void online proctored exam in case of irregularities

1. The Board of Examiners can declare the online proctored exam of one or more students invalid if, during the exam, there was insufficient insight into the possibility of fraud or if there were circumstances that enabled fraud.
2. If the situation described in section one of this article is the consequence of a irregularity at the expense and risk of the student, the student will not be offered an extra possibility to take the exam.
3. In case of force majeure, reported by the student during the exam, the student can submit a request for an extra exam. If the irregularity is at the expense and risk of the university, a new exam will be offered.
4. The irregularity is at the expense and risk of the student when the student has not followed the instructions of the online proctored exam.

Art. 4.4 – assuring the quality of examinations (final level of the graduates)

The Board of Examiners will ensure that:

- a. the exit qualifications for the course as described in the Education and Examination Regulations are translated into testable learning objectives for each course;
- b. it is systematically examined whether there is a sufficient connection between the course objectives and the final attainment levels, or the sum of the learning objectives for each course corresponds to the exit qualifications for that course.

Art. 4.5 – Board of Examiners’ own investigation to maintain quality of examination

1. A student has passed the examination if all parts of the examination programme have been successfully completed. Contrary to this, the Board of Examiners may decide that in order to pass the examination the student must have complied with the requirements relating to the Board of Examiners’ own investigation as referred to in Section 7.10(2) of the Higher Education and Research Act into the knowledge, understanding and competence of the student.
2. The Board of Examiners will only conduct such an investigation if it establishes that there are certain facts or circumstances leading to the conclusion that the Board of Examiners cannot vouch for the student having obtained the exit qualifications of the programme (as referred to in Art. 3.1 of the Education and Examination Regulations).
3. If the Board of Examiners exercises its authority to conduct an investigation as referred to in the first paragraph, it will inform the student(s) concerned in writing of its decision, giving reasons and drawing the student’s attention to the option to submit an appeal to the Examination Appeals Board.

PARAGRAPH 5 - EXEMPTIONS, APPROVAL OF COURSE UNITS

Art. 5.1 – exemption

1. Students who wish to receive one or more exemptions, must submit a request with argumentation to the Board of Examiners. The request must be signed and contain:
 - the student's name, address and student number;
 - a description of the reasons on which the exemption is being requested;
 - for which course(s) the exemption is being requested;
 - an authenticated copy of the student’s diploma, examination results or proof of tests previously taken;

- and/or a description of the knowledge and experience the student has obtained outside of higher education, accompanied by the relevant documents showing this.
2. The Board of Examiners will forward the request for advice to the examiner(s) in charge of teaching the course(s) for which the exemption is being requested.
 3. The Board of Examiners will decide within six weeks of the date of receipt of the request on whether the exemption will be granted. With the exception of academical holidays as laid down in the academical calendar and during fieldwork periods.

Art. 5.2a – approval of course units bachelor

1. Students wishing to include course units, which require prior permission of the Board of Examiners on the grounds of the Education and Examination Regulations, must submit a substantiated request to the Board of Examiners. The request must be signed and contain:
 - the student’s name, address and student number;
 - a description of the contents, level and assessment of the courses for which approval is being sought;
 - an indication of the way in which the student wishes to include the course(s) in the education programme.
2. The Board of Examiners will, if necessary, forward the request for advice to the programme coordinator or a specialist lecturer of the programme.
3. The Board of Examiners will decide within six weeks of the date of receipt of the request. With the exception of academical holidays as laid down in the academical calendar and during fieldwork periods.
4. If approval concerns course units outside UU, following their completion the student will submit a certified transcript or a document detailing the student’s progress.
5. Based on the certified transcript, course content description(s) and, if so requested, further substantiation by the student, the Board of Examiners grants course level 1, 2 or 3 to a course taken outside UU in accordance with the UU teaching model.
6. If the course information (as referred to in art. 5.2.5) proves to be insufficient to determine course level and EC, the Board of Examiners will grant level 1 and/or 1 EC.
7. The Board of Examiners does not grant a course level (1, 2 or 3) to courses taken abroad.
8. Contrary to the provisions of 5.2a.7, at least the level of the course to be replaced will be granted if the Board of Examiners decides to approve courses taken abroad as a replacement component in the major.
9. If a student can demonstrate that they cannot meet the course level requirements of the elective course profile, they have to submit a substantiated request to the Board of Examiners to grant level 2 or 3 to the courses required to meet the course level requirements.
10. The Board of Examiners will decide about the request (as referred to in art. 5.2.9), if necessary after consulting the programme coordinator or a specialist lecturer of the programme.

Art. 5.2b – approval of course units master

1. Students wishing to include course units, which require prior permission of the Board of Examiners on the grounds of the Education and Examination Regulations, must submit a substantiated request to the Board of Examiners. The request must be signed and contain:
 - the student’s name, address and student number;
 - a description of the contents, level and assessment of the courses for which approval is being sought;

- an indication of the way in which the student wishes to include the course(s) in the education programme.
- 2. The Board of Examiners will, if necessary, forward the request for advice to the programme coordinator or a specialist lecturer of the programme.
- 3. The Board of Examiners will decide within six weeks of the date of receipt of the request. With the exception of academical vacation periods as laid down in the academical calendar and during fieldwork periods.
- 4. If approval concerns course units taken outside UU, following their completion the student will submit a certified transcript or a document detailing the student's progress.
- 5. Based on the certified transcript, course description(s) and, if so requested, further substantiation by the student, the Board of Examiners grants a number of credits to a master's course taken elsewhere.
- 6. If the course information (as referred to in art. 5.2b.5) proves to be insufficient to determine a number of credits the Board of Examiners will grant 1 EC.

PARAGRAPH 6 – COMPLAINTS

Art. 6.1 - complaints about testing and marking

1. The first point of contact for students who have a complaint about testing and marking is the lecturer, who as examiner is responsible for determining the result of the test. If there are several examiners for the course, the course coordinator is the first point of contact as the 'representative' for all examiners involved in the test (provided that the course coordinator is also an examiner). The lecturer or course coordinator will endeavour to reach a solution in an informal manner.
2. 'Testing and marking' is understood to mean all situations where there is a formal assessment moment that leads to a mark or an alphanumerical result relating to learning objectives and exit qualifications that are laid down in the Education and Examination Regulations.
3. If the quality of the test is at issue and the complaint has implications for the result of the test, the lecturer and/or course coordinator will ensure that a quality analysis is carried out to assess whether the test meets the general quality requirements as referred to in paragraph 4. In the case of wide-ranging complaints or complex issues concerning content, third parties will be consulted if necessary, such as a specialist lecturer, a testing expert or the faculty's Assessment Committee. The quality analysis will be conducted as soon as possible, preferably before the test results are published.
4. If the quality analysis reveals that the test does not meet one or more quality requirements, the lecturer and/or course coordinator may decide to adjust the marks and the standard. If the final test result has already been published, the amended result may no longer be to the disadvantage of one or more students.
5. The Board of Examiners may make use of its statutory authority pursuant to Section 7.12b (1)(b) of the Higher Education and Research Act: 'to lay down guidelines and rules from within the framework of the education and examination regulations (...), to assess and establish the result of tests and examinations'. The lecturer and/or course coordinator will observe the guidelines and rules laid down by the Board of Examiners.

Art. 6.2 - appeal against decisions concerning testing and marking

1. Students may submit an appeal against the decisions of examiners or the Board of Examiners to the Examination Appeals Board within six weeks of publication of the mark/alphanumerical result. See <https://students.uu.nl/en/practical-information/policies-and-procedures/complaints-objections-and-appeals/examination-appeals-board>

2. Art. 54 of the Administration and Management Regulations of UU stipulates that a formal complaint will not be dealt with if it concerns conduct against which the person involved may lodge an appeal. Since an appeal may be submitted to the Examination Appeals Board against decisions relating to testing and marking, complaints about testing will not be dealt with according to the formal complaints procedure of Utrecht University. This means that the complaints procedure described in Art. 6.1 is not formal in nature.

PARAGRAPH 7 – FINAL PROVISIONS

Art. 7.1 – annual report

1. The Board of Examiners will draw up an annual report of its activities for each academic year and send this to the dean.

2. The annual report will contain the following parts:

a. composition of the Board of Examiners;

b. monitoring of quality of the tests and examinations (final level of the graduates):

- description of procedures and guidelines for marking and setting standards for tests; way in which it is ascertained that these are applied;

- description of guidelines for marking and setting standards for research assignments and theses; way in which it is ascertained that these are applied;

- way in which and number of times that the quality of the tests has been examined.

c. quantitative information, numbers:

- diplomas awarded (plus number with distinction (cum laude));

- requests for exemption or approval;

- requests for a special examination dispensation;

- cases of fraud;

- binding study advice.

d. interpretation of trends

e. recommendations.

Art. 7.2 – amendments

1. Amendments to these regulations will be laid down by the Board of Examiners in a separate decision.

2. Any amendment to these regulations does not relate to the current academic year, unless the interests of the students are not harmed as a result in all reasonableness.

Art. 7.3 – entering into force and publication

1. These regulations enter into force on 1 September 24.

2. The Board of Examiners will ensure the publication of these regulations, as well as any amendment thereto, via the internet.

APPENDICES

APPENDIX 1

Overview of the executive panels to the Board of Examiners

Executive panel Earth Sciences (ES)

Undergraduate school (bachelor degree programme):

Aardwetenschappen

Graduate school (master degree programme):

Earth Sciences

Executive panel Sustainable Development (SD)

Undergraduate school (bachelor degree programmes):

Global Sustainability Science

Natuurwetenschap en Innovatiemanagement

Graduate school (master degree programmes):

Energy Science

Environmental Sciences

Science and Innovation

Executive panel Human Geography and Planning (HGPL)

Undergraduate school (bachelor degree programme):

Sociale Geografie en Planologie

Graduate school (master degree programmes):

Development Studies

Geographical Information Management and Applications (joint degree)

Human Geography

Human Geography and Planning

Spatial Planning

APPENDIX 2

Examiners profile Board of Examiners Geosciences

The Geosciences Examination Board assesses against a number of criteria before proceeding to appoint an examiner:

- a. The nominated person has a permanent or fixed-term contract with Utrecht University².
- b. The nominated person is in possession of a BKO or an SKO.
- c. The nominee has at least a PhD degree.

² or has been appointed at one of the joint degree partner universities if it concerns GIMA program components

d. The nominated person is an expert in the field covered by the examination component. The Board of Examiners assesses whether the person nominated has a PhD or has other demonstrable experience in the field covered by the examination component.

e. The nominated person has not been stripped of his examinership in the academic year preceding the intended academic year.

If a nominated person does not meet the above criteria, the Board of Examiners may make an exception with regard to the criteria referred to under a to e. An additional substantiation will have to follow with the nomination. The Board of Examiners will include the following questions in its assessment:

- Does the nominated person have sufficient knowledge of the field?
- Does the nominee have sufficient knowledge of testing?
- Is the nominated person affiliated with a (Dutch) university?
- If it concerns a bachelor's or master's thesis, who is the intended first or second examiner besides the nominated person?
- If the examinership was withdrawn, are the grounds for the removal of the examinership still present?

Adopted by the Board of Examiners on: 26 April 2021

APPENDIX 3

Guideline for the appointment of Examiners

This guideline is applied by the Board of Examiners committee when appointing examiners. The term 'Researcher' in this guideline refers to all staff members under the UFO profile Researcher (1, 2, 3, and 4), including postdocs. 'Teacher' refers to the UFO profile Teacher (1, 2, 3, and 4). 'PhD candidates' include not only PhD students but also junior university lecturers and other staff members in a combined profile of teacher and PhD candidate.

General

An examiner has been appointed at Utrecht University³, holds a PhD, is an expert in the relevant subject, and possesses at least a basic teaching qualification (BKO) as specified in the Examiners Profile. The executive panel within the educational institute is authorized to deviate from this guideline using the decision framework in the Examiners Profile. The executive panel will annually review the proposed deployment of examiners in education when it is presented by the Board of Education. If a proposed examiner does not meet the above criteria, the proposal must be substantiated.

Final projects

A bachelor's or master's thesis must be independently assessed by two examiners. Each bachelor's and master's thesis requires at least two independent, separate, and well-reasoned assessments, and the rubric assessment forms are structured to reflect this. At least one of the examiners must meet the criteria in the Examiners Profile. Additionally, for the assessment of theses, an examiner can be appointed who at least meets the following criteria:

³ or has been appointed at one of the joint degree partner universities if it concerns GIMA program components

Master's Thesis

- Is appointed at Utrecht University, and
- Is at least a PhD candidate (\geq 2nd year) or Researcher.

This examiner is not required to possess a teaching qualification.

Bachelor's Thesis

- Is appointed at Utrecht University, and
- Is at least a Teacher, PhD candidate (\geq 2nd year), or Researcher.

This examiner is not required to possess a teaching qualification.

After being appointed by the Board of Examiners, both examiners are independent and equal assessors.

Adopted by the Board of Examiners on: 24 June 2024

3.5 Teaching periods Department of Sustainable Development 2024-2025

36	37	38	39	40	41	42	43	44	45
1 2-8/9	2 9-15/9	3 16-22/9	4 23/9-29/9	5 30/9-6/10	6 7-13/10	7 14-20/10	8 21-27/10	9 28/10-3/11	10 4-10/11
GEO Intro					9/10 Master open day				break

46	47	48	49	50	51	52	1	2	3	4	5
1 11-17/11	2 18-24/11	3 25/11-1/12	4 2-8/12	5 9-15/12	6 16-22/12	Xmas break	Xmas break	7 6-12/1	8 13-19/1	9 20-26/1	10 27/1-2/2
			3/12 rep. 1	10/12 rep. 1							break

6	7	8	9	10	11	12	13	14	15	16
1 3-9/2	2 10-16/2	3 17-23/2	4 24/2-2/3	5 3-9/3	6 10-16/3	7 17-23/3	8 24-30/3	9 31/3-6/4	10 7-13/4	11 14-20/4
7/2 Master open day			25/2 repairs period 2	4/3 repairs period 2					11/4 break	break

17	18	19	20	21	22	23	24	25	26	27	28
1 21/4-27/4	2 28/4-4/5	3 5-11/5	4 12-18/5	5 19-25/5	6 26/5-1/6	7 2-8/6	8 9-15/6	9 16-22/6	10 23-29/6	11 30/6-6/7	7-11/7 repairs period 4
21/4 Easter Monday		5/5 Liberation day	13/5 rep. 3	20/5 rep. 3	29/5 Ascension day + 30/5 break		9/6 Pentecost			break	
					27/5 rep. 3, year 1 GSS						

Green = Dept. of SD	Yellow = GEO wide	Rep= repair exam
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3.6 UU time table 2024-2025

Teaching periods

Semester I:

- Period 1: Monday 2 September 2024 – Friday 8 November 2024
- Period 2: Monday 11 November 2024 – Friday 31 January 2025

Semester II:

- Period 3: Monday 3 February 2025 – Friday 18 April 2025
- Period 4: Monday 21 April 2025 – Friday 11 July 2025

Timeslots

- A Monday morning and/or Wednesday morning
- B Tuesday morning and/or Thursday afternoon
- C Monday afternoon and/or Thursday morning
- D Wednesday afternoon, Friday morning and/or Friday afternoon
- E Monday evening, Tuesday evening, Wednesday evening, Thursday evening and/or Friday evening

Course enrolment (only via OSIRIS Student: www.uu.nl/osirisstudent)

Period 1 (Start courses: Monday 2 September 2024)

Course enrolment: Monday 3 June 2024 till Friday 21 June 2024

Late enrolment: Monday 19 August 2024 and Tuesday 20 August 2024

Period 2 (Start courses: Monday 11 November 2024)

Course enrolment: Monday 16 September 2024 till Friday 27 September 2024

Late enrolment: Monday 21 October 2024 and Tuesday 22 October 2024

Period 3 (Start courses: Monday 3 February 2025)

Course enrolment: Monday 4 November 2024 till Friday 22 November 2024

Late enrolment: Monday 20 January 2025 and Tuesday 21 January 2025

Period 4 (Start courses: Tuesday 22 April 2025)

Course enrolment: Monday 27 January 2025 till Friday 7 February 2025

Late enrolment: Monday 31 March 2025 and Tuesday 1 April 2025